THE IRON TRADE REVIEW

Vol. LXIV Cleveland, March 13, 1919 *No. 11*

Market Halts Awaiting Price Action

Buyers Suspend Purchases Except for Barest Minimum Needs—Guarantees Against Decline Sought—Postponement of Price Conference Tends to Prolong Lifeless Trading—Important Points to be Settled Before Stabilized Plan Prevails

NEW buying of iron and steel to the utmost degree is being held in suspense while producers are preparing to carry into effect their decision to co-operate with the government in a concerted effort to stabilize trade conditions. Considerable price reductions in various lines are regarded as assured by the rank and file of consumers and the holding back of orders except where guarantees against decline are given is the natural result of this belief. The sluggish condition of the market prevailing for some weeks past, accordingly, has been intensified. Circumstances compelling the postponement by a week of the conference between the committee representing the industry and the new industrial board of the department of commerce promise to prolong this inactivity and uncertainty. A concrete example of the tactics of delay now being pursued by buyers is the action of the navy department in rejecting bids on 20,000 tons of steel for battleship and fuel ship construction recently received, and the readvertising of this letting for March 21. The original bids were at the full market prices.

Some Points Unsettled

Until the conference between the producers and the government representatives takes place the form and extent to which the co-operative movement will be carried by the manufacturers in the way of price readjustments must remain a matter of conjecture and a factor of contiuing unsettlement. It is apparent that several important questions remain to be clarified before any uniform and effective attempt to mark down values can be brought about. The element of labor cost; the legal aspects of collective price decisions and the policy to be pursued toward the higher cost producers are among these. Surprise occasioned by the reversal of opinion by a large faction of producers opposed to the Redfield plan brings forth the explanation that the government proposal offers the only available means to speedily effect in an orderly manner a readjustment which had become inevitable, and thereby to restore confidence. Greater weight is put by the industry upon a stabilized rather than a lower price level in the encouragement of buying.

Export Trade Is Growing

Lower prices in conjunction with the gradual settling of ocean freights promise to have a stimulating effect upon export trade which has continued to broaden slightly but in a more encouraging fashion. Large sales are few but there is a heavier run of bookings from fair size to small tonnages. In this connection, British competition because of wage advances, labor troubles and home demands, appears less formidable. Scandinavian countries have been buyers of bars, wire products and tin plate. South America has been placing some substantial orders mostly through the various governments. Considerable business is being done in wire rods with different foreign countries. A lot of 10,000 tons of rails for Russia now before the mills is reported to be for the trans-Siberian system. An inquiry is current for 50,000 tons of pig iron for Belgium, and another for 20,000 tons of steelmaking iron for England. While iron and steel export opportunities to Europe are reported as numerous, the arrangement of satisfactory credits is difficult.

Iron Costs Are Varied

A survey of costs by merchant pig iron producers preliminary to the making of price recommendations, discloses a wide range of from $23 to $34 per ton depending upon the district. It is apparent, therefore that any considerable downward revision will operate to force a number of furnaces out of blast. Pig iron prices have remained untested with an inclination toward softness. Further lots of valley iron have been offered at $28 furnace, and some selling at this figure is reported.

Steel ingot output in February was the lowest since January and February, 1918, when operations were subnormal because of weather and traffic conditions. February's output was at the annual rate of approximately 38,000,000 to 39,000,000 tons.

MARCH 13, 1919

THE IRON TRADE REVIEW

A weekly publication devoted to the Iron, Steel, Foundry and Metal-working Industries

Published Every Thursday by
THE PENTON PUBLISHING CO., Cleveland

BRANCH OFFICES

CHICAGO - - - - - - 1147 Peoples Gas Bldg.
CINCINNATI - - - - - - 128 Opera Place
NEW YORK - - - - - 2203-2206 No. 220 Broadway
PHILADELPHIA - - - - 1316 Land Title Bldg.
PITTSBURGH - - - - 2148-49 Oliver Bldg.
WASHINGTON, D. C. - - - - 40 Metzerott Bldg.
BIRMINGHAM, ENG. - - - - Prince's Chambers

Subscription, United States and Mexico, $4 per year. Canada $6, and other Foreign Countries, $8 per year.

Entered at the Postoffice at Cleveland as Second Class Matter

Copyright 1919 by the Penton Publishing Co.

IN THIS ISSUE

PAGE

Iron and Steel Market Review 675
Editorials 676, 677
Iron and Steel Prices 678, 738
Index to Market Reports 678
Iron and Steel Markets 679
Universal Mill Rolls Strip Steel 691
Roughing Unit is of Massive Construction, Each Housing Weighing 42 Tons—Spring of Mill When Rolling High-Carbon Steel is Approximately 0.001 Inch—Equipment Designed to Eliminate Scale.
How to Obtain Efficiency in Use of Coal 695
Stoker Convertible to Forced Draft 696
Recent Progress of Blast-Furnace Lines 697
Modern Puddling Mill Makes Debut 699
Fixing Responsibility for Accidents 702
Develops Steel Rail for Hard Service 703
Democratizing French Engineering 704
Surface Grinder for Tool Room Work 705
Heavy Naval Gun is Given Field Mounting 707
Employment Service Guesses Again 710
Contract Adjustment Rules Issued 711
Will Broaden Foreign Trade Data 714
Canada Optimistic on Foreign Trade 716
Completing New Income Tax Return 722
Specimen Form Filled Out So as to Make Clear Many Uncertainties Arising From Various Situations—Not Necessary to Explain in Detail Reason for Time Extension—More Questions Answered.

Price Co-operation in Sight

ANOTHER period of controlled or supervised market conditions in iron and steel appears to be in sight. In itself, the acceptance by the iron and steel makers of the country assembled at New York last week of the invitation to join in the government's effort to stabilize prices does not mean that price readjustment under federal auspices is to follow. There are several important questions that remain to be settled before a new era of some form of governmental market control may be considered as assured. Among others there is the matter of wages; the question whether one government department responsible for large buying will accept a "suggested" price determined by another department which has little or no purchasing duties in iron and steel; the legal backing that can be given to any price-fixing policy in the postwar period; provisions for the eventual termination of the co-operative movement; and similar phases of the undertaking which are yet to be settled. The determination of each and all of these matters will have its influence upon the development and success of the plan. In Judge Gary's words, the recommendation of the board of directors of the American Iron and Steel institute was that the industry "promptly accept the invitation of the government to co-operate so far as proper and consistent." The industry, therefore, reserves judgment as to what constitutes "proper and consistent" co-operation after the government makes known clearly what it expects of the producers. It is apparent, therefore, that great consequence attaches to the conference between government representatives and the new industrial board of the department of commerce at Washington at which the working details of the stabilizing plan will be made known.

At the same time there is every reasonable expectation that the various important questions requiring proper adjustment before the new price plan may function properly will be satisfactorily determined. Many iron and steel makers undoubtedly went to the New York meeting skeptical of the practical benefits to be derived from the Redfield plan and with the feeling that it would be best to allow the adjustment of prices to follow the unrestricted laws of supply and demand. After hearing the statement of the purposes and methods which the government will pursue, by its accredited representative and the address of Judge Gary they voted without a single dissenting voice to join in the co-operative price movement. As matters stand today the government is in the position of coming to the iron and steel industry seeking its co-operation. This completely reverses the situation that obtained on Jan. 1 of this year when the industry asked but was refused government authority to readjust prices by an orderly process. Furthermore, publication of the general purposes of the Redfield plan, out of a common expectation of lower prices, has operated to further restrict already timid buying of iron and steel, making early and satisfying readjustment of the market more and more necessary for the restoration of confidence. It may be said, therefore, that the iron and steel industry now is turning to the government's stabilizing proposal in a practically united way, feeling that it offers the only immediate means of clearing the air; possibly, of expediting the return of more settled conditions; and that as such it should and must be taken advantage of fully.

Without question there are possibilities of important benefits both for the industry and for the general business situation in closer co-operation of the producers with the government. These benefits are not matters merely of the present but apply equally to the future. It is a hopeful sign, indeed, to see the government's manifest appreciation of the value of intimate co-operation with business for the promotion of national good. Evidently some of the lessons of the war have gone home. It is notable that the new industrial board is composed largely of men of the former war industries board. The language of the United States Council of National Defense in this week announcing the details of the Redfield plan equally is significant. That declares it is proposed "to

call industry together group by group and let them decide on prices to be offered to the nation as the governmentally approved judgment of assembled industry, etc." To "decide on prices" surely is an unusual privilege for the manufacturers in times of peace. But in this very freedom lurks dangers and difficulties for industry and a too-paternalistic or a regulatory policy too long continued on the part of the government would be disastrous. In the end, the industry must stand by itself. The ultimate benefits of the new stabilizing movement therefore depend wholly upon the liberal, broad-visioned way in which it is administered. The country evidently is about to witness a most interesting economic enterprise along lines which are so original as to stamp it largely as an experiment.

A Sane View of Conditions

DESERVING of wide publicity is the current monthly bulletin of the federal reserve board, because the advance epitome of its contents suggests absolute impartiality on the part of its authors in the matter of the part labor and capital must play in the readjustment problem still before the nation's industries.

"It would be unreasonable," says the summary, "for any factor in production to assert that it would not bear its share in the general process of readjustment. Such readjustment is designed for the common benefit of all participants in industry and the public at large. If it be equitably carried out its effects will not tend to favor any particular class or group in the community, but will operate to increase the general volume of business and the regularity and smoothness with which the industrial mechanism moves and functions."

Saner advice has not been made public since the signing of the armistice and it is to be hoped that labor pays as much heed to this view as it does to its leaders. The iron, steel and allied industries already have taken steps to expedite the readjustment to peace conditions through voluntary price reductions and these concessions have been made at the expense of profits rather than of wages. The remuneration of workmen, to be sure, has declined not as a result of wage reductions, but because business has tapered off considerably.

It is now proposed that further reductions of prices be made with the hope that this will mean more business and fuller employment of labor. It would seem that labor must bear its part in the scheme, for the sooner prices reach normal the sooner business will improve and the size of the pay envelopes increase.

Signs point so strongly to highly prosperous times in the recovery from war conditions, once it gets under way, that any sacrifices labor may make should be short-lived. The realization of this situation resolves itself in an important sense in one question: Will labor make such sacrifices as may be asked of it and help in the restoration effort or stand obdurate on the question of wages, thus hindering a movement that is to benefit it as much as the employers?

Why Have a Merchant Fleet?

DIFFICULTIES encounted in the export field are arousing a keen appreciation of an American merchant marine. With prices lower than those of foreign makers and business connections abroad just as solid the restrictions on our foreign trade largely have centered around our inability to ship. Had it not been for the merchant ships built during the war and placed under the American flag, our exporters would today probably not be able to turn a wheel.

Some business men seem to be making it a particular hobby to criticise and scoff at the strenuous attempts to build up an American merchant marine. They are even more harsh in their condemnation of our navigation laws, without going into specific cases. But during the war and since the signing of the armistice some rather important American export houses have grown up and many American selling agents have been sent abroad. These have had an excellent opportunity to study the real conditions and they are frank enough to acknowledge that they have much to thank for the small merchant fleet that does today fly the American flag.

Despite the price concessions and other liberalities advanced by American producers, not a ton of iron or steel would we have sold abroad after the armistice had it not been for these "impractical" American-built merchant ships. And despite the crudeness of our navigation laws, some of the violent discriminations in ocean freight rates against us have been avoided. It has been demonstrated conclusively that American producers would have been compelled to pay many times more the freight charges to foreign markets than they are today paying had it not been for the merchant ship construction during the war.

There is no call for a defense of the asininity of certain phases of our shipping laws, and it is well to confess that the control and management of shipping might be under a better system. At the same time the fundamental fact must be acknowledged that if America wishes to retain her prosperity and sincerely desires to carry on a business of international trading, it is essential that a sizable merchant fleet fly the American flag. Without the American flag on the high seas there is every reason to believe that an industrial depression would have followed almost immediately upon the heels of the armistice. Without a large merchant fleet under the American flag the country will shrink back into the provincialism of the prewar days.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES ON PAGE 738

Pig Iron

Bessemer, valley	$32.30
Bessemer, Pittsburgh	33.60
Basic, Pittsburgh	31.40
Basic, valley	30.00
Basic, delivered eastern Pa.	33.90
Basic, Buffalo, furnace	30.00
Malleable, Pittsburgh	32.90
Malleable, Chicago, furnace	31.50
Malleable, Buffalo, furnace	31.50
Malleable, delivered eastern Pa.	35.40

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern	2.25 to 2.75
No. 2X Eastern and Virginia	2.25 to 2.75
No. 1X eastern	2.75 and up
No. 1 Chicago	2.25 to 2.75
No. 2 foundry eastern	1.75 to 2.25
No. 1X, eastern delivered Phila.	37.90
No. 2, valley, Pittsburgh	29.40 to 32.40
No. 2 foundry, Cleveland furnace	31.00
No. 2 foundry, Ironton furnace	31.00
No. 1 foundry, Chicago furnace	32.25
No. 2 foundry, Chicago furnace	31.00
No. 2X, eastern del., Phila.	36.15
No. 2X, eastern, N. J. tidewater	35.25
No. 2X foundry, Buffalo furnace	32.25
No. 2 foundry, del. Philadelphia	34.90
No. 2 foundry, N. J. tidewater	34.00
No. 2 southern, Birmingham	32.25
No. 2 southern, Cincinnati	35.85
No. 2 southern, Chicago	37.25
No. 2 southern, Phila.	38.75
No. 2 southern, Cleveland	37.25
No. 2 southern, Boston	40.25
No. 2 southern, St. Louis	35.40
Virginia, No. 2X, furnace	32.00
Virginia, No. 2X, Phila.	36.10
Virginia, No. 2X, Jersey City	36.40
Virginia, No. 2X, Boston	36.75
Gray Forge, valley, Pittsburgh	30.40
Gray Forge, eastern Pa.	33.90
Silveries, 8%, furnace	44.50
Ohio Silveries, 8%, Chicago	47.80
Tennessee Silveries, 8%, Chicago	48.50
Low phos. standard, Phila.	51.00
Low phos. Lebanon, furnace	48.00 to 50.00
Low phos. standard, Pittsburgh	51.40
Charcoal, Superior, Chicago	38.70

Coke

(At the ovens)

Connellsville furnace	$4.00 to 5.00
Connellsville foundry	4.75 to 6.00
Pocahontas furnace, nominal	8.00
Pocahontas foundry, nominal	8.00
New River foundry, nominal	8.00
New River furnace, nominal	8.00
Wise county furnace, nominal	7.25
Wise county foundry, nominal	8.25

Ferroalloys

Ferromanganese, 80 per cent delivered	$150.00
Spiegel, 16 to 20 per cent furnace, spot	45.00 to 50.00
Ferrosilicon, 50 per cent, spot and contract, delivered	125.00 to 135.00
Ferro carbon-titanium, carloads, producers plant, per net ton	200.00
Bessemer ferrosilicon, 10 per cent	54.00
Bessemer, ferrosilicon, 11 per cent	57.30
Bessemer, ferrosilicon, 12 per cent	60.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

Semifinished Material

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$43.50
Open-hearth, Philadelphia	47.50
Open-hearth, Youngstown	43.50
Bessemer, Pittsburgh	43.50
Bessemer, Youngstown	43.50
Forging, Pittsburgh	56.00
Forging, Philadelphia	60.00

SHEET BARS

Open-hearth, Pittsburgh	$47.00
Open-hearth, Youngstown	47.00
Bessemer, Pittsburgh	47.00
Bessemer, Youngstown	47.00

SLABS

Pittsburgh and Youngstown	$46.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.00
Grooved skelp, Pittsburgh	2.70c
Sheared skelp, Pittsburgh	3.00c

Shapes, Plates and Bars

(In cents per pound)

Structural shapes, Pitts.	2.80c
Structural shapes, Phila.	3.045c
Structural shapes, N. Y.	3.07c
Structural shapes, Chgo.	3.07c
Tank plates, Chicago	3.27c
Tank plates, Pittsburgh	3.00c
Tank plates, Philadelphia	3.245c
Tank plates, New York	3.27c
Bars, soft steel, Pittsburgh	2.70c
Bars, soft steel, Chicago	2.97c
Bars, soft steel, New York	2.97c
Bars soft steel, Phila.	2.945c
Bar iron, common, Phila.	3.145c
Bar iron, common, Chicago	2.87c to 2.92c
Bar iron, common, Cleveland	3.17c
Bar iron, common, New York	3.17c
Bar iron, common, Pittsburgh	3.10c
Bar iron, refined, Pittsburgh	5.00c
Hard steel bars, Chicago	2.80c

Rails, Track Material

Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Relaying rails, light, St. L.	40.00 to 45.00
Angle bars, Pittsburgh base	3.00c
Angle bars, Chicago base	3.00c
Light rails, 25 to 45, mill	2.75c
Spikes, railroad, Pitts.	3.65c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	4.92c
Track spikes, Chicago	3.92c
Tie plates, Chicago	3.00c

Wire Products

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh	3.95
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	5.00
Coated nails per count keg, Pitts.	3.40
Polished staples, Pittsburgh	3.85
Galvanized staples, Pittsburgh	4.35

Chain, Piling, Strip Steel

(In cents per pound)

Chain, 1 in. proof coil, Pitts.	7.50c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1⅛ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.25c.

Market Report Index

	Page
Weekly Market Review	675
Pig Iron	679
Merchant and Cast Iron Pipe	680
Coke	681
Scrap	682
Sheets	683
Structural Shapes	683
Ferroalloys	684
Bars	684
Nuts, Bolts and Rivets	684
Tin Plate	685
Plates	685
Semifinished Steel	686
Wire	686
Cars and Track Materials	686
Nonferrous Markets	690
Coke By-Products	725
Machine Tools	726

Sheets

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	4.70c
No. 28, bessemer, Pitts.	4.70c
No. 28, open-hearth, Chi.	4.97c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	4.70c
No. 28, bessemer, Pitts.	4.70c

GALVANIZED

No. 28, open-hearth, Pitts.	6.05c
No. 28, bessemer, Pitts.	6.05c
No. 28, open-hearth, Chi.	6.32c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	3.90c
No. 10, bessemer, Pitts.	3.90c
No. 10, open-hearth, Chi.	4.17c
No. 10, open-hearth, Phila.	4.145c

Tin Plate

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.35

Iron and Steel Pipe

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
⅜ to 3 in., butt, steel	54	40½
¼ to 3 in., butt, iron	36	20

Boiler Tubes

Steel, 3½ to 4½ inches, l. c. l.	38
Iron, 3½ to 4½ inches, c. l.	12½

Cast Iron Water Pipe

Without War Freight Tax

(Class B Pipe)

Class A pipe is $1 higher than Class B.

Four-inch, Chicago	$64.80
Six-inch and over, Chicago	61.80
Four-inch, New York	65.70
Six-inch and over, N. Y.	62.70
Four-inch, Birmingham	58.00
Six-inch and over, Birmingham	55.00

Hoops, Bands, Shafting

Hoops, Pittsburgh	3.30c
Bands, Pittsburgh	3.30c
Hot rolled strip steel, Pitts. stamping quality	3.30c to 3.80c
Shafting, Pitts., carloads	21 off to list
Cotton ties, per bundle	nominal

Rivets

Structural rivets, Pittsburgh	4.20c
Boiler rivets, Pittsburgh	4.30c
Rivets ⅞ in. and smaller Pittsburgh, 50-10 off to 50-10-10 off.	

Nuts and Bolts

(Prices f. o. b. Pittsburgh)

CARRIAGE BOLTS

(⅝ x 6 inches, smaller and shorter)

Rolled thread	50–5 off
Cut thread	40–10–5 off
Larger and longer	40 off

MACHINE BOLTS

(⅝ x 4 inches, hot pressed nuts)

Rolled thread	50–10–5 off
Cut thread	50–5 off
Larger and longer	40–10 off
Cold pressed semifinished hexagon nuts ⅝ in. and larger	60–10–10 off
Cold pressed semifinished hexagon nuts ⅞ in. and smaller	70–5 off
Gimlet and coach point lag screws	50–10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotations on leading products March 12, average for February, 1919, average for December, 1918, and average March, 1918. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices Mar 12, 1919	Average prices Feb., 1919	Dec., 1918	Mar., 1918
Bessemer, valley del., Pittsburgh	$33.60	$33.60	$36.60	$37.25
Basic, valley del., Pittsburgh	31.40	31.40	34.40	33.95
*No. 2 Foundry, Pittsburgh	32.40	32.40	35.40	33.95
*No. 2 Foundry, Chicago, furnace	31.00	31.00	34.00	33.00
Lake Superior charcoal, Chicago	38.70	38.70	38.70	37.50
Malleable, valley	31.50	32.90	35.90	34.45
Malleable, Chicago	31.50	31.50	34.50	33.50
**Southern, No. 2, Birmingham	32.25	32.25	35.25	33.50
*Southern Ohio, No. 2, Ironton	31.00	31.00	34.00	33.00
Basic, eastern del., eastern Pa.	33.90	33.90	36.90	33.00
**No. 2X Virginia, furnace	32.00	33.00	38.00	33.50
**No. 2X, eastern del., Philadelphia	36.15	36.15	39.15	34.25
Ferromanganese, 80 per cent., delivered	150.00	187.25	235.50	250.00
Bessemer billets, Pittsburgh	43.50	43.50	47.50	47.50
Bessemer sheet bars, Pittsburgh	47.00	47.00	51.00	51.00
Open-hearth sheet bars, Pittsburgh	47.00	47.00	51.00	51.00
Open-hearth billets, Pittsburgh	43.50	43.50	47.50	47.50
Steel bars, Pittsburgh	2.70	2.70	2.90	2.90
Steel bars, Chicago	2.97	2.97	3.17	2.90
Iron bars, Philadelphia	3.145	3.295	3.745	3.50

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Prices Mar 12, 1919	Average prices Feb., 1919	Dec., 1918	Mar., 1918
Iron bars, Cleveland	$3.25	3.25	3.64	3.64
Iron bars, Chicago mill	2.92	2.95	3.50	3.50
Beams, Chicago	3.07	3.07	3.27	3.00
Beams, Pittsburgh	2.80	2.80	3.00	3.00
Beams, Philadelphia	3.045	3.045	3.245	3.185
Tank plates, Pittsburgh	3.00	3.00	3.25	3.25
Tank plates, Chicago	3.27	3.27	3.52	3.25
Tank plates, Philadelphia	3.245	3.245	3.495	3.435
Sheets, blk., No. 28, Pittsburgh	4.70	4.70	5.00	5.00
Sheets, blue anld., No. 10, Pittsburgh	3.90	3.90	4.25	4.25
Sheets, galv., No. 28, Pittsburgh	6.05	6.05	6.25	6.25
Wire nails, Pittsburgh	3.50	3.50	3.50	3.50
Connellsville furnace coke	4.25	4.125	6.00	6.00
Connellsville foundry coke	5.00	5.125	7.00	7.00
Heavy melting steel, Pittsburgh	14.75	16.00	27.50	30.00
Heavy melting steel, eastern Pa.	14.00	15.25	24.75	29.50
Heavy melting steel, Chicago	15.00	14.90	26.50	30.00
No. 1 wrought, eastern Pa.	21.50	25.00	33.50	35.00
No. 1 wrought, Chicago	17.50	16.65	29.65	35.00
Rerolling rails, Chicago	16.50	15.50	30.40	35.00

(FOR ADDITIONAL PRICES SEE PAGE 738)

Iron Market Awaits Price Revision

Furnaces Fix on Recommendations at New York Meeting—Varied Costs Shown Indicates Cut Will Force Out Some Stacks—Valley Iron is Offered at $28—Belgium Wants 50,000 Tons

Pittsburgh, March 11.—In the lack of either sizable sales or inquiries, actual prices for pig iron are extremely indeterminate. During the past week an inquiry for 3000 to 4000 tons of high silicon bessemer iron for export had come before some sellers and most of the trade here has received a circular letter from an English importing house located in Antwerp, Belgium, suggesting the possibility of the practicability of American importation and presenting a list amounting to 50,000 tons of various grades of iron on which it seeks quotations c.i.f., Antwerp, and other information as to possible shipment. An inquiry for 500 tons of basic has been put out by a Pittsburgh district consumer but those receiving it believe that its chief purpose is to find out the condition of the market and that if the buyer covers this tonnage he will do so among resale offerings. As far as foundry iron is concerned, sales and inquiries have dwindled recently. The fact that some valley producers have shown a disposition to accept business at below the market on resale tonnages and that some fairly large lots of resale iron had been offered for shipment here for Buffalo at well below the regular market quotations, has had the effect of making buyers more cautious instead of stimulating their interest. One valley producer is said to be offering foundry iron at $28 furnace. This producer holds contracts for the iron made at $34 furnaces and is understood to be asking buyers to take it up. On failure to receive shipping instructions, this maker is offering the iron upon the open market, the idea being to establish a base for a claim against the original buyer for the difference between the contract and the selling price. Lower prices cannot be named on basic or bessemer iron in the lack of business. Outside of the inquiries for 500 tons of basic, previously referred to, not an inquiry of more than a car load or 100 tons has been received for the steel making grade recently. Talk still persists that the appearance of a good size inquiry from a buyer who really intended to place the business, would result in lower prices for both basic and bessemer.

Cut Would Force Out Stacks

Philadelphia, March 11.—Present costs of merchant furnaces are on a high level according to data compiled at the meeting of producers in New York Monday preparatory to the determination of price recommendations to be made in the cooperative stabilizing movement. It was shown that for producing basic and foundry grades in the Cleveland, valley and Pittsburgh districts the cost ranges from $23 to $25; at Buffalo it is somewhat higher; in eastern Pennsylvania it ranges from $25 to $28. The average Alabama costs were put considerably higher. The significance of these cost data is that any considerable reduction of pig iron prices to be named under the suggested plan will necessitate the blowing out of a number of furnaces. Pig iron business in this district is at a standstill and very few inquiries are pending. Sellers say that the average consumer has enough iron to last beyond July 1. The Baltimore & Ohio railroad is asking for 250 tons of foundry iron. Another consumer wants from 300 to 500 tons of malleable. Eastern makers generally are maintaining prices and any exceptions are few. A small tonnage of No. IX foundry has been offered at $33.10 delivered eastern Pennsylvania. It is not known whether this is resale or direct furnace iron. The Dunbar furnace now making ferromanganese will switch to foundry iron soon.

Recommend Pig Iron Prices

New York, March 10.—Pig iron manufacturers meeting at the Waldorf-Astoria in this city today prepared recommendations to be made to the American Iron and Steel institute committee which soon will confer with the industrial board at Washington for the establishment of a

price level satisfactory to the industry. Nothing yet has been said as to what the prevailing opinions are, as to what this price should be, but it is expected that the base figure to be recommended will not be lower than $25.

Weakness continues to be reflected in eastern pig iron but there is so little business that the market is not being tested. One car of No. 1X foundry has been sold by a Lehigh valley furnace at $34.50, furnace, which, delivered at New York or Brooklyn, represents a concession of about $2.50. Some No. 2X iron has been sold by a Buffalo maker at $31, furnace, and an eastern furnace has shown a willingness to shade current quotations on low-phosphorus iron.

Good-sized inquiries are coming out constantly from foreign sources and although no export sales of any significance have been made, the indications are considered bright that considerable foreign buying of American pig iron ultimately will develop. Inquiries are coming out constantly from foreign sources, and a great many of them are from England. It is regarded as assured that at least some buying by English consumers will develop in the near future. Among current inquiries is one for 20,000 tons of basic for England.

It is of considerable interest to note that one of the eastern furnaces in a few cases where customers desired to cancel tonnages, has made them pay the difference between the contract price and the present market price before according them the privilege of cancellation.

Business is Very Slow

Cleveland, March 11.—Business in pig iron the past week has been even duller than recently owing to the new doubts about prices raised by the developments in the government proposed stabilizing plan. Sales and inquiries practically have disappeared. In some cases consumers have requested shipment to be held up. One large buyer asked that a round tonnage closed for the first half be spread out over the last half. This request was refused. Piling of iron at furnaces continues. Buyers are reporting their ability to obtain No. 2 foundry from certain furnaces on the basis of $28 valley or $3 concession and these statements seem to be well founded. Reports of greater concession, however, are not confirmed and are not credited. Willingness of some producers to absorb freight and quote on the basis of the nearest furnace continues. Larger makers, however, are holding firm to $31 furnace. Export inquiries are numerous but sales few. Advices from Antwerp received in the week were to the effect that Belgium will require 50,000 tons of bessemer, basic, malleable and foundry iron during the next two months. An inquiry for basic from England has been received by local makers as well as for bessemer and other grades for Japan.

Await Readjustment Results

Buffalo, March 11.—Furnacemen here are awaiting the result of the negotiations between the industry and the industrial committee of the department of commerce in the matter of stabilizing market conditions. Some furnacemen here seem to think that the movement is being started late in the day. They believe that it would have been a good solution of the problem a couple of months after the armistice was signed but at this period of development, they hold that the situation would take care of itself. These makers do not look for any great stimulation in trade as a result of the adjustments. Pig iron market conditions here are extremely quiet. Domestic inquiry is at a minimum and foreign inquiry though large in volume is very light as to actual placement. Most of it comes from Japan, Italy and Scandinavia. Some export tonnage has been placed here but it has been very light. One Buffalo interest which had a furnace down for relining, finds that its other furnaces can take care of the business, so the relined stack will be down until business mends. The interest is shipping all the other furnaces produce. The report that 10,000 tons of resale Buffalo iron is being offered is believed to be exaggerated. Producers say that there may be 1000 tons being offered by an overstocked foundryman but they do not know accurately. The report was that 10,000 tons was being offered 75 cents below the market. Some makers are advocating a manganese differential on basic, as 50 cents for 1 to 1.50 per cent and $1 for 1.50 to 2.00 per cent.

Market Marking Time

Chicago, March 11.—Under the uncertainty bred by the present endeavor to bring about stable prices, the pig iron market is absolutely inactive. Even the buying of carloads for immediate delivery, which has been a feature recently, is no longer evident and practically no tonnage is being booked. No change has taken place as to shipments, but it is believed that iron would be taken in much more readily by consumers if the financing of railroads made it possible for them to come into the market for supplies. This is believed to be one of the greatest factors in industrial activity, especially for foundries and renewed business in this department is not expected until they are able to place their orders. Under these circumstances, there are no features in the market and conditions are most unsettled.

May Curtail Production

Cincinnati, March 10.—Curtailment of production appears to be the logical solution of the problems now confronting producers who are turning out more iron than for which there is demand. Reports are more numerous that such action is contemplated. Action along this line has been taken in the South and further curtailment of production is said to be imminent in that district. Selling agencies generally report a very slack demand for any kind of iron, and their sales mostly are confined to the usual carload run of business that characterized the market during the present year. Reports have reached here that some resale iron has been bought below the schedule, but it is more than probable that these rumors concern comparatively small tonnages of iron held by melters who wish to make small concessions so as to prevent any further stocking up.

St. Louis Market at Standstill

St. Louis, March 10.—The pig iron market in this district is at a standstill. There is little demand for finished products and melters are not disposed to speculate on the future by taking material for distant requirements at present prices. It would be difficult to imagine greater inertia than obtains with the selling agencies. Inquiries are exceedingly scarce, the few sifting in occasionally being in the nature of feelers, as they develop no business. One sale of 100 tons of southern foundry to an interest for immediate use and several lesser transactions constituted the business during the past week. Sellers believe the dullness is not due to price but to the fact that there is no consumptive demand. Shipments on contracts continue heavy, and requests for cancellations have about disappeared. Many contracts, however, are nearing termination, especially those covering the first quarter. With only one exception, southern producers have openly announced the reduction to $31 base for No. 2 foundry, and it is understood that the interest which has not yet committed itself to the cut gladly would accept business at the lower figure. Producers, expressing a pessimistic view, are determined apparently not to accumulate at the present high cost of production, which means wholesale blowings out, as not a single interest of any importance has contracts sufficient even to take care of its curtailed output. Another stack in this district has gone out of blast, and two more will follow before the end of March.

Carlot Sales Made in South

Birmingham, Ala., March 11.—Southern furnace companies report sales of the 50 to 100-ton variety. Production has been curtailed considerably during the past week, three furnaces having been blown out. Others are likely to follow suit. The Sloss-Sheffield Steel & Iron Co., has only three furnaces in blast. The Woodward Iron Co. has two active and the Alabama Co. two, while the Tennessee Coal, Iron & Railroad Co. is putting in the furnace at Ensley recently damaged, and another one of the group is to be blown out for repairs. The Woodstock Iron Co.'s furnace is in blast. Quotations for pig iron continue around $31 for No. 2 foundry. A lower price was reported in this district recently. This was the purchase of about 600 tons at the Trussville furnace for about $28 furnace. Very few inquiries are coming in.

Pipe Held Up

Cast Needs Still Accumulate—Oil Country Goods Still Active

New York, March 10.—While inquiries continue to come before the eastern cast iron pipe trade, buyers for the most part still are holding off, some undoubtedly awaiting developments in the plans now being formulated for a general reduction of prices. Some interests are of the opinion that pig iron will be reduced to $25, or $6 under the current market, and that cast iron pipe will un-

dergo a similar reduction; however, the majority of foundrymen are of the opinion that such a cut will not be made. Despite the uncertainty, consumers continue to issue inquiries, although many apparently are purely for sounding out conditions. An inquiry of this character is that of Hastings-on-the-Hudson, N. Y., for 1000 tons, chiefly of 6 and 8-inch pipe. The only active public inquiries at present are those of the Passiac valley sewerage commission, and the city of Bayonne, N. J., the former closing on 500 tons tomorrow and the latter on 1500 tons March 14. Eastern foundries, in the absence of any buying of consequence, continue to operate at around 30 to 40 per cent. While some of the foundries are favored by having old contracts to fall back on, others are forced, in order to keep their organizations intact, to work on stocks.

Pipe Mills Fairly Busy

Pittsburgh, March 10.—Oil country goods continue in strong demand and even larger business than is doing might be done if it were not for the fact that practically all of the railroads serving the state of Texas are embargoed as a result of the freight congestion incident to the opening up of the Ranger and Burk Burnett fields. Outside of this class of tubular goods, however, trading is inclined to be quiet, although small tonnages of line pipe are being placed and some makers report specifications on old orders for merchant pipe to be coming along somewhat better than recently. No accumulation of lapweld sizes is noted but some piling of buttweld is taking place. Some big orders for line pipe are probable at any material decline from current levels. It is said that the oil and natural gas interests in this and adjacent territory, owing to the open weather, are about ready to lay a good many lines and are waiting for lower prices. The National Tube Co. continues to run its plants practically full and independents are operating from 70 to 75 per cent. Current demands do not warrant such a high scale of operation but manufacturers are doing some stocking in anticipation of demands a little later on from the jobbing trade.

Buying is Checked

Chicago, March 11.—Uncertainty of prices has checked the buying of cast iron pipe which started out in February with fair promise of some activity. At present most cities appear to be waiting until price regulation and revision have been settled one way or the other. The Colorado Fuel & Iron Co. has been given 340 tons of 16-inch pipe for Denver. Figures were opened March 10 at Ft. Wayne, Ind., on 1100 tons.

Southern Market Still Lagging

Birmingham, Ala., March 11.—While there is a slight improvement noted in the melt of iron at the cast iron pipe plants in this district, no material improvement in the demand for pipe is reported. Disappointment is expressed by makers who expected that long before this numerous specifications would be in hand.

Coke Prices More Stable

Choice Connellsville Furnace for Prompt Shipment Holds at $4.25 Minimum—Foundry Sale at $5.50—Virginia Brands Nominal

Pittsburgh, March 11.—Although anything but active, the coke market here is holding fairly steady around the prices reached a week or so ago. For spot or prompt furnace fuel the market is quotable from $4 to $4.50, ovens. These prices, however, are extremes, for those consumers who are not covered by contracts and who are in the market for current requirements have set $4.25 as their limit on choice brands of 48-hour coke. Only in a few instances have they been induced to pay more. On the other hand, fuel that is selling down to $4 would hardly pass muster as standard grade except in such times as when consumers are inclined to forget quality in their desire for quantity. The lowest prices continue to be made, and the spot market still is being established entirely by the producers who have no direct furnace connections and who cannot curtail output in accordance with the demand. These interests have coke for sale and with the demand limited they are obliged to defer to buyers' wishes as to prices. Other factors, who can increase or reduce production as their contract requirements rise or fall still are holding out firmly for $4.50, ovens, for standard furnace coke. These are the larger producers and most of them last week operated only four days and are continuing this schedule this week. Asking prices for standard foundry coke run as high as $5.50, ovens, and it is reported that a sale of 3000 to 4000 tons was made at that figure. In a broad way, however, $5 seems to be the limit on this grade as far as spot or prompt shipments are concerned and it is reported that some of the smaller producers who have loaded cars they had to move have made sales as low as $4.75. Foundry coke booked on the so-called government price contracts generally is moving at $6 and some furnace coke also is going out at that price, original contract terms never having been revised. Connellsville production fell back somewhat during the week ended March 1, and with several of the larger producers running only four days a further decline is indicated for last week. According to *The Connellsville Courier* production of coke for the week ended March 1 was 224,872 tons, compared with 233,612 tons in the previous week.

New River and Wise County Firm

Cincinnati, March 10.—There is some buying of coke, mostly in the Connellsville field for nearby shipment. Coke producers there nearly always have taken the initiative in reducing prices, and the present instance is no exception. It is reported that the smaller production costs have had a great deal to do with this seemingly regular schedule. New River and Wise County are both holding firm, but will have difficulty in competing with Connellsville in obtaining orders, should operators in those fields hold to present prices. Connellsville furnace coke can be purchased as low as $4 at ovens but some producers are holding out for $4.50. Foundry coke there is unchanged around $6.25 to $6.55, depending largely on quality. No prices have been set in the remaining producing districts.

Demand for Foundry Fuel Lags

St. Louis, March 10.—Excepting a fair inquiry for furnace grades, no change in the coke situation has developed during the past few days. The more reasonable prices on foundry coke have failed to stimulate demand, and the selling agencies are quite satisfied there will be no improvement until melting becomes of much heavier volume than at present. Most of the foundries have contracts which will carry them well into the second half and beyond that period they are not willing to deal. Advices from the Southwest are to the effect that the general region is being well taken care of by the southern ovens, and dealers here have not made a sale in that direction for weeks. The principal by-product interest continues to produce at close to capacity, and has contracts which absorb its metallurgical coke but other grades are accumulating to some extent. Coal is plentiful and moving with regularity, and the same is true of eastern coke. At present nothing is changing hands aside from insignificant tonnages for immediate use.

Production in South Curtailed

Birmingham, Ala., March 11.—Demand for coke has decreased and as a consequence production has been curtailed. The Gulf States Steel Co. has shut down the 250 beehive coke ovens at Sayre, in the western part of Jefferson county, the Sloss-Sheffield Steel & Iron Co. having blown out two furnaces which used the coke. One or two of the iron companies in this district, with their furnaces out of commission, will begin accumulating coke. Independent coke producers have some business still on hand and claim there is no reason to reduce prices. The market is weaker now than it has been for some time.

Dyer Dies in New York

Philip Sidney Dyer, president and organizer of the American Horse Shoe Co., Phillipsburgh, N. J., died in New York City, March 10, at the age of 62. Mr. Dyer had been identified with the industry for a long time, being associated with Thomas A. Edison from 1879 until 1892, at which time he organized the American Horseshoe Co. He was a director of the Sweets Steel Co., West Branch Steel Co., Williamsport, Pa., the Canadian Shovel & Tool Co., and several other companies. He was a member of the American Iron and Steel institute and the Engineers' club of New York City.

Scrap Market is Steadier

Dealers Continue to Buy but Consumers Still Enter Market Sparingly —Readjustment Plan Watched—Cast Steel Shells Sold

FOR COMPLETE SCRAP PRICES SEE PAGE 738

Chicago, March 11.—In spite of the depressing effect of lack of railroad buying because of failure to appropriate funds, the scrap market has reacted slightly and a general advance of about 50 cents per ton has been made in the past few days. A generally better feeling is noted and dealers buying to apply on short sales find they must pay the advance to obtain material. The most marked scarcity is present in No. 1 cast scrap, which is selling much higher than heavy melting steel, an unusual situation. This grade seems to be especially hard to obtain and there is strong demand for it. An unusual situation seems imminent, steel prices apparently being on a verge of a decline which will cause scrap to advance sharply if buying and production are stimulated by the lower price of finished material. The reason for this is that scrap has liquidated thoroughly while steel has declined only a small amount from the highest prices. Railroads continue to pour out larger tonnages of scrap than has been the case recently. The Chicago, Burlington & Quincy offers 3200 tons, the Southern 2500 tons, included in which is 400 tons of steel rail, the Wabash 2150 tons, the Chicago, Indiana & Louisville 1745 tons and the Chicago Great Western 300 tons.

Trading in East Light; Prices Steady

New York, March 10.—Aside from some fair buying of heavy melting steel and mixed borings and turnings, trading in the local scrap market remains light. Nevertheless, prices generally are holding steady, and dealers state that sellers are less inclined to accept offers than in many weeks. The concensus of opinion appears to be that prices have about reached bottom. The only material to show particular weakness is wrought pipe, which sagged off to $13 to $13.50, f.o.b. New York. A recent development in the east has been the sale of 1300 tons of 12-inch, cast-steel shells at the Picatinny arsenal, Dover, N. J., the material going at $10.44 per net ton, Dover. Another lot of 500 tons of 7-inch cast iron was sold at this arsenal late last week, although the price has not as yet been announced. Other large sellers of scrap recently have been the New York Central, which sold between 3000 and 4000 tons, and the Pennsylvania, which disposed of about 5000 tons.

Market Somewhat Steadier

Pittsburgh, March 11.—Although still lacking in activity, the scrap iron and steel market here is showing a distinctly steadier undertone, the result of the fact that in some directions buyers are showing more interest and also because prices generally are at levels that make collection, grading and shipping unprofitable to shippers. Machine shop turnings for example, come here chiefly from Detroit, and the present prices of $9.25 to $10 here would mean around $4 to $4.50 at Toledo. Naturally, producers are more inclined to let such material pile up than to sell at these figures. Not only are the offerings of this class of scrap much lighter than they have been recently but demands are heavier. Sales now take a minimum of $9.25 delivered, and offerings at that figure are by no means large. A southern Ohio steel manufacturer recently bought 1100 tons of turnings at $9.25, for blast furnace use. The market is looking up on cast scrap under the influence of a dearth of offerings and a better demand. Heavy melting steel is quotable at $14.50 to $15 at consuming point. On the basis of recent sales, $14.75, delivered, is a fair average but it is known that some dealers prefer to store rather than sell even at $15. The Pennsylvania lines east will receive bids until March 12 and 13 on 500 tons of plate shearings, punchings and axle turnings accumulated by the Pressed Steel Car Co., McKees Rocks. The Pennsylvania lines east have been offering accumulations recently of scrap of the Ralston Steel Car Co. at Columbus, O., of the Standard Steel Car Co. at Butler, Pa., and of the American Car & Foundry Co. at Huntington, W. Va. These companies being located on its lines, it is said, in the future will offer other scrap supplies through the scrap department of that railroad.

Eastern Buying Small

Philadelphia, March 11.—Buying of iron and steel scrap continues small and consists largely of heavy melting steel, blast furnace borings and turnings by brokers to fill contracts. Buying by consumers makes up only a small tonnage for quick shipment. It is the belief among brokers that the market is at bottom. Some large consumers think the same but evidently are not prepared to buy ahead now.

Believe Cut Would Help

Cleveland, March 11.—Scrap iron and steel dealers here are anxiously awaiting any reduction in pig iron, steel and finished material, foreseeing in a cut in these products a possible increase in the price of old material. This, they reason, is likely to result from the business reduced iron and steel prices would stimulate. Scrap prices, they believe, can be reduced no further, while pig iron producers are asserting scrap prices now are too low to permit the freest sale of pig iron, under normal competitive conditions. Prices in the Cleveland scrap market have remained stationary the past week. Trading has been stimulated somewhat, but not enough to have any material effect. The market seems to have just about reached bottom. Heavy melting steel still is bringing $14.50 to $15, while turnings are to be had for $7.25 to $7.75. Dealers are much aroused at the continuance of the permit system, claiming it should be abandoned now as it was introduced under the guise of a war measure only. Consuming mills are given an undue advantage in holding up shipments, dealers declare.

Demand Keeps Up

Buffalo, March 11.—The same encouraging tone prevails in the scrap market this week as last. There have been some sales of heavy melting steel on the basis of $14 to $15 and it is reliably reported that there was a sale in the Pittsburgh district at $16. Prices continue firm in other grades and there is a good demand for borings, turnings and stove plate. No heavy tonnages are being sold at this time. Dealers are afraid of selling short. There is no big tonnage of scrap at any dealer's yard in this vicinity. The scrap men, it is understood, are in favor of a price stabilization scheme. They believe that with a sufficient cut in the prices of pig iron and steel, a good demand for scrap would follow. The view is taken that if buying is resumed with pig iron selling around $26 the price of heavy melting steel should reach $19 to $20.

Waiting for Developments

Cincinnati, March 10.—Dealers are taking matters somewhat philosophically and are waiting for something to happen that will give them an insight on what the future will be. Very little scrap is bought for storage purposes and purchases on the part of melters are very much limited both in number and size. Only small changes have been made in quotations, although most figures are simply nominal ones on account of the absence of any transactions of size.

No Consumptive Demand

St. Louis, March 8.—Certain dealers continue to purchase and lay up material, which has a tendency to stabilize prices, but there is no consumptive demand for cast iron and steel. The relatively low prices of some grades have stimulated speculation by yard interests and smaller dealers, who are paying slightly in excess of current quotations. This especially is true of melting steel rails and rerolling rails, offerings of which have been augmented to some extent. Not a single steel plant in the district, however, is purchasing any grade. On the contrary, the mills are seeking to cancel contracts wherever possible. Several of the more important plants have large accumulations. There is little scrap coming on the market, other than from the railroads. The Missouri, Kansas & Texas sold 15 cars, and the Frisco lines 30 cars, all of which went to speculators at slightly better than currently quoted figures. In addition the Mobile & Ohio was out with a list of 1200 tons and the Union Pacific with 1500 tons.

Southern Market Devoid of Life

Birmingham, Ala., March 11.—Old material dealers have been buying some scrap iron and steel from large accumulations by railroads and other sources of supply. Ordinary consumers of heavy melting steel have been holding off from the market. This grade is still around $12. The old material market is devoid of life and some of the leading dealers say

it will be six months before there will be any material improvement. It is announced that some foundries are using scrap instead of pig iron. Old contracts in hand before the signing of the armistice are about completed and new business is practically nil.

Auto Sheets

Continue Only Active Branch—Valley Operations Remain Irregular

Pittsburgh, March 11.—Automobile makers continue fairly free buyers of the kinds of sheets they use, but otherwise, dealings in the market are extremely limited; so limited, in fact, that it is more than likely that the next week or two will see a considerable curtailment of mill operations. For a time it looked as though buyers were beginning to believe that prices would hold, but the recent meeting in New York between the American Iron and Steel institute and the representative of the department of commerce has dissipated that notion and they now are holding back waiting for a decline. A fair amount of unfilled business is before the manufacturers in black and galvanized sheets, but they seem to have pretty well caught up on bookings of blue annealed stock. First curtailment is likely to come at mills engaged on the latter product. Rumors are current both of concessions in prices and that strict compliance with contract obligations is not being insisted upon by manufacturers but these reports are vigorously denied.

Sheet Mills on Thin Ice

Chicago, March 11.—Manufacturers of steel sheets find it possible to continue operation practically at capacity but without a backlog to insure full production very far ahead. Present operation is thinning out orders rapidly and it is believed unless a change for the better comes soon, mills must go on part time.

Buying is Irregular

Youngstown, O., March 10.—In some parts of the valley buying of sheets is at a greater height than in other parts but nowhere is the volume of business large. The trade seems to be waiting the final outcome of the Redfield price suggesting plan. The mails bring in a fair supply of inquiries but when these are run down it usually develops the consumer is buying just enough sheets to supply his immediate needs and shelving the remainder of the tonnage asked.

Makers are scurrying for new business and are successful in booking enough tonnage to keep their mills operating partially. The Western Reserve plant of the Brier Hill Steel Co. is idle this week while the plant of the Deforest Sheet & Tin Plate Co. which was idle last week has five mills in operation. Few makers here cater to the automobile trade inasmuch as they do not make high-finished sheets and hence but little of this business is coming to the valley.

The ban on personal cables to allied forces in the occupied section of the Rhineland has been removed.

Shape Tonnage is Held Up

Buyers Awaiting Outcome of Price Stabilizing Movement—Failure of Navy and Railroad Appropriations Affects Market

New York, March 10.—New inquiry in the structural market is light. A factor in this situation may be the possibility of an early reduction of prices as a result of future conferences between iron and steel representatives and the government committee recently appointed at the suggestion of Secretary Redfield. A severe setback to buying has resulted in the failure of congress to allow the appropriation of $750,000,000 for the railroads, and considerable interest is being manifested in efforts being made to supply at least the greater portion of this amount until congress can convene again. The failure of the $800,000,000 naval appropriation also will affect the navy structural projects which have been fairly numerous, it is believed. Prices on plain shapes continue steady. Bids are to go in tomorrow however on approximately 6000 tons for a shop at the Mare island navy yard.

More Piers Put Out

Philadelphia, March 11.—Structural business in this territory is slightly improved. A number of small repairs have been let and several new contracts are coming out. The city has plans out for two more piers each of which will require 2000 tons or more. Some business now in sight is held up pending expected price action at Washington.

Trading Still Extremely Slow

Pittsburgh, March 11.—Although buyers of shapes are interested in the market enough to make inquiries, actual bookings by fabricating interests are extremely limited. One company in this district in the past week or so had no less than a dozen inquiries calling for less than 100 tons each but failed to book an order out of the lot. This experience is pretty general. Plenty of projects that involve big tonnages of steel are in sight in this district but actual awards are probably months off. At least three new bridges are being planned for the Monongahela and Allegheny rivers, and Pittsburgh at no distant date is likely to have a new postoffice. In addition, there is talk of a downtown subway to relieve street car congestion in the narrow streets of this section, while some time in the future the Pennsylvania railroad will erect a new union station in this city. Attention of the structural steel interests centers largely in federal, state and municipal projects, as it is believed that costs figure less prominently in this sort of work than in private undertakings. It is known that engineering companies are figuring on a great many projects but they plainly state that no actual start will be made until prices get down to more nearly normal levels. It is difficult to arrive at any definite idea of what these interests consider normal prices. A basis of $40 a ton for beams has been suggested but the mills declare such a price is out of the question without a sharp decline in labor costs. Small tonnages of shapes are being sought for export but inquiries far exceed the tonnage placed. Independent mills in this district are not running much better than 50 per cent of capacity. Work on the radio towers at Munro, N. C., has been abandoned and contracts for the steel amounting to 12,000 tons, which was placed with the McClintic-Marshall Co., Pittsburgh, has been canceled.

Award General Contract

Cleveland, March 11.—Award of a general contract for the new Hanna office building has been made to the John Gill & Sons Co. on a percentage basis. It is not believed however, that this means an early beginning of the construction unless there is a material reduction in steel price on which the project awaits. Several other propositions which are in definite shape are being held in abeyance until definite price action is taken. One of these involves 600 tons for an eastern shop.

Much Tonnage Held Back

Chicago, March 11.—Evident desire to go ahead with building operations is shown by the large number of projects presented for estimates which do not get to the point of buying material. It is evident that a lower range of cost for material and labor would give one of the most active building periods the west ever has seen. But under present circumstances, much hesitation precedes actual buying and in most cases projects are held up when figures have been received. The only project closed in the west recently involves 405 tons for a refrigerator plant for Armour & Co., at the Union Stockyards, Chicago, which will be fabricated by the Hansell-Elcock Co.

CONTRACTS AWARDED

Refrigerating plant No. 2 for Armour & Co., Union stock yards, Chicago, 405 tons, to Hansell-Elcock Co.

CONTRACTS PENDING

Two additional piers for city of Philadelphia, 2000 tons or more each, bids being taken.

Building for Felin Packing Co., Philadelphia, 160 tons; bids being taken.

Hanna office building, Cleveland, 3000 to 4000 tons, general contract awarded to John Gill & Sons Co. on percentage basis.

Will Finance Contracts

Washington, March 11.—A meeting has been called for Thursday of equipment companies holding contracts under railroad administration to determine ways and means of financing obligations due these companies. These aggregate approximately $185,000,000. This is the result of the failure of congress to pass necessary legislation providing funds for the railroad administration.

Bar Orders Kept in Check

Chicago Producers Experience Dullest Week in Several Years but This is Only Immediate Condition—Underlying Conditions Good

Chicago, March 11.—With the possibility of price regulation close at hand and with railroads buying shut off until financing can be accomplished, consumers of steel bars, in common with buyers of all finished steel products, are entirely out of the market. The past week has been the dullest for several years in the experience of important producers. The necessity for buying soon, even if only for current needs, is one of the bright spots in the market and if uncertainty can be removed by price stabilizing plans and railroads can find money with which to buy their necessities, the market should be active for a long time. The leading interest is running full, with consumers pressing for delivery, even the present high rate of shipment being insufficient to meet demand among manufacturers for material to cover their production.

Bar iron inquiry is light, with quotations at 2.65c, Pittsburgh, the equivalent of 2.92c, Chicago mill but it is believed an attractive inquiry would bring a lower figure. In fact it is believed some quotations have been made on the basis of 2.87c, Chicago. No inquiry is being received for hard steel bars rerolled from rails and this market is moribund. The first business expected is when agricultural implement manufacturers start renewed activity.

Want Decline Guarantees

Cleveland, March 11.—Prospects of price reductions have caused some buyers of steel bars and other products in this district to seek guarantees against decline on any tonnage they may now be placing. It is not learned that any mill definitely has given these guarantees. Regardless of price uncertainties considerable miscellaneous tonnage continues to be received by the mills representing absolute needs of consumers. The bookings of one interest for the first two weeks in March equalled the tonnage received in the full preceding month. An oil well supply interest has been in the market for 900 tons of rounds. Price softness in reinforcing bars continues and one small lot of rerolled material is reported to have gone as low as 2.35c, mill. An inquiry for 200 tons for the Cleveland Automobile Co. plant is expected to definitely disclose price conditions.

Expect No Bar Iron Cut

Philadelphia March 11.—Makers of bar iron do not expect their prices to be reduced under the proposed stabilizing plan as 2.90c, Pittsburgh, is regarded as the minimum. Makers are doing some business in common bars at this figure but little new tonnage is moving in refined bars. Steel bar sales are small in anticipation of lower prices. Western makers are shading bolt prices. They are offering in the east, machinery bolts at 45, 10 and 5 to 45, 10 and 2½ off the list, while eastern manufacturers are quoting 45 and 10 off. Eastern makers will hold a meeting in this city March 19 to discuss this situation and it is expected that this may lead to a reduction of prices.

Closing Merely as Needed

Pittsburgh, March 11.—Demand for merchant steel bars is fairly constant but bookings are entirely for small lots such as will meet the immediate requirements of buyers. It is reported that some of the smaller mills are shading prices but the larger manufacturers still are adhering firmly to the price established Jan. 1 of 2.70c Pittsburgh. Apparently the demand for bars from the retail trade is no greater than that from the jobbers upon the manufacturers, as the report has been pretty persistent lately that the full differential of $1 per 100 pounds over mill price is not being exacted by the warehouse interests. The recent reduction of $8 a ton in the price of iron bars to a basis of 3.10c Pittsburgh has not stimulated the demand, buyers merely covering their immediate needs. Concrete reinforcing bars made from rerolling rails or discard shell steel probably could be bought at as low as 2.50c Pittsburgh. Makers certainly would entertain such a bid but the establishment of this quotation is impossible in the lack of actual sales.

Bolt Selling Steady

Chicago, March 11.—Manufacturers of bolts and nuts find buying is about equal to present production, which is approximately 65 per cent of capacity. This department keeps up fairly well without much variation in volume, but buyers are not pressing hard for large supplies.

Developments Are Awaited

Cleveland, March 12.—Makers of nuts, bolts and rivets in the Cleveland district as well as their customers are sitting tight awaiting the next move on the part of the producers of raw materials. If prices on steel are reduced, concessions are expected on nuts, bolts and rivets. The only business coming to nut and bolt manufacturers is what is absolutely needed. Consequently no large tonnages are involved. The same condition applies to rivets. On the latter prices of $4.20 on structural and $4.30 on boiler rivets are being obtained. Rivet manufacturers are operating on a 50 per cent basis.

Business Still Decreasing

Pittsburgh, March 11.—Demands upon the makers of nuts, bolts and rivets still are tapering off with prices showing more and more irregularity under the competition for a share of such business as is passing. Some makers still are quoting 4.40c and 4.50c for structural and boiler rivets respectively, but others are quoting 20 cents per 100 pounds, less than the lower figure on the basis of most of the sales. Almost no demand exists for small rivets and prices are entirely in buyers' favor. No shading of prices on track bolts is noted but demands are much smaller than they were a short time ago. Slight concessions are reported in carriage and machine bolts and nut prices also show an easier tendency.

Auto Makers Buy Shafting

Pittsburgh, March 11.—Demand for cold rolled shafting from automobile builders is steady and forms the chief outlet for this sort of material. The demand even from this source is for small lots and lacking old orders as well as new business from other buyers, mill operations in this district do not average much better than 50 per cent. Makers are adhering firmly to a basis of 21 per cent off list in spite of the fact that offerings from second hands at less money are fairly liberal.

Hoop and Band Buying Slack

Pittsburgh, March 11.—Demand for hoops and bands is of extremely limited proportion. Cooperage interests seem to be well covered as they have been practically out of the market now for several weeks. Users of band steel evidently are in the same condition as inquiries from this source also are limited. The price holds at 3.30c Pittsburgh on both hoop and bands but the maintenance of this quotation in nowise reflects current requirements. This price is quoted chiefly because, if there was a demand, sales could be made at this base as well as any other. In other words, it is not a question with buyers so much of prices as of requirements.

Varied Prices

In Ferroalloy With Resale Metal Still Dominating Market

Pittsburgh, March 11.—Resale offerings of ferroalloys although not especially heavy are more than sufficient for current demands, and as sellers are more anxious for the cash than the material prices continue to sag. New business direct with producers amounts to practically nothing. Since the alloys now being offered by consumers were purchased in anticipation of government orders, sellers practically are guaranteed against loss regardless of the price they accept. On 80 per cent ferromanganese, $150 a ton delivered, not only is the maximum but also is becoming an extreme quotation on resale business. Actually in some cases where the only interest the seller had was in the establishment of a claim against the government, sales have been made of this material at less than $140. Producers, meanwhile, continue to quote as high as $200 a ton. This price, of course, has no basis in sales. An inquiry for a good sized tonnage of ferromanganese has been received here from an eastern export house, but as yet nothing has been done with it. It is reported that a Dutch inquiry made upon English producers brought out a quotation from the latter at the equivalent of $170 per ton c.i.f. Liverpool, equivalent to higher than $176 New York.

The market in ferrosilicon is purely

a resale affair. Makers still are quoting as high as $120, freight allowed, but resale tonnages, in which the bulk of business is being done, are offered from $90 to $100. Some makers of electrolytic ferrosilicon are reported to be considering changing over to the production of ferrochrome and ferrophosphorus, due to the poor outlook for ferrosilicon. One Middle Western maker of ferrosilicon actually has announced his entrance into the ferrophosphorus field. This alloy, which finds its chief use in the manufacture of sheet and tin bars, is quoted at $125 furnace. Some inquiries are coming out here for ferrovanadium but sales are few and small as buyers and sellers are apart on prices.

Production is Being Curtailed

New York, March 11.—Several resales of 50 per cent ferrosilicon have been made at $90, delivered, although makers continue to quote $110 and upward. The production of this alloy is being radically curtailed. One plant is being scrapped, it is understood, while several others are operating at only a small proportion of normal output.

Ferrotungsten prices have been scaled downward, sales having been made by manufacturers at $1.75 a pound contained, standard alloy, while resale alloy has gone as low as $1.55 a pound contained. There is some talk of English competition at lower prices.

Resale Alloys Depressed

Chicago, March 11.—Until resale lots of ferromanganese and spiegeleisen have been absorbed by the market, no activity in new material is expected. The present price of ferromanganese is close to $200 per ton, without activity. Resale material is changing hands at various figures according to circumstances. The local stack producing ferromanganese has been idle for some weeks, and probably will not be blown in until conditions change.

Two Ohio Tin Plate Makers to be Consolidated

The Trumbull Steel Co., Warren, O., has obtained an option on a majority of the common stock of the Liberty Steel Co., Warren, and preliminary steps have been taken toward the merger of the two companies, according to an announcement by the Trumbull company. The price specified in the option is $130 a share to be paid for by July 1 in preferred stock of the Trumbull company. E. F. Clark, president of the Liberty company, has advised all the holders of the common stock to accept the offer. The Liberty company has $1,000,000 in common stock and $500,000 in preferred outstanding, and at a recent meeting of stockholders additional issues of $1,000,000 in common and $500,000 in preferred were authorized. Trumbull preferred has been selling around 105½, while Liberty is unlisted. The Liberty plant began operation last May, as a manufacturer of tin plate. Gross earnings for the last half of 1918 amounted to $264,083; the surplus after all interest, dividends and depreciation charges amounted to $143,725.69.

Big Plate Needs in Sight

Believe Much Tonnage Will be Released With Establishment of Stable Prices—Cut May Reduce Output—Lake Boats Go Ahead

Philadelphia, March 11.—Large tonnages of plates are in prospect and will be released by consumers as soon as they regard the market as stable according to eastern producers. Much business is expected if any lower price that may be brought about under the co-operative plan is accompanied by the assurance that it represents the bottom figure. At the same time eastern makers believe that any lower plate price will force some mills out of the market until costs go down or improved demand sends prices up. Included in the business held up for lower price is several thousand tons for locomotives for the Baldwin Locomotive Works. Nothing definite yet has developed regarding the 20,000-ton boats planned by the Emergency Fleet corporation, but it is expected that 12,500 to 15,000-ton types will be substituted for some of the small vessels under contract.

Buyers Await New Prices

New York, March 10.—For plates and other finished forms of steel, demand has fallen off to a minimum during the past two weeks, due to the outlook for lower prices as a result of the co-operation between the government and the American Iron and Steel institute. Representatives of the steel companies are not doing anything to stimulate buying at the moment. In fact, they frankly are telling their customers to wait for a few days before placing any more business. In some cases, the consumers are eager to place tonnages, and are waiting with impatience for the new prices. One order which a buyer is waiting with impatience to place, involves 10,000 tons of plates, shapes and bars.

New Demands Are Moderate

Pittsburgh, March 11.—Makers of plates in this district are not being flooded with new business. Actually, buyers are moving rather cautiously and are making frequent small purchases rather than entering into long-time contracts. Some unfilled tonnage still remains on the books of makers but each day sees the decrease in the amount of such bookings. The navy department has not yet placed the business for the battleships and fuel ships planned for construction at the Brooklyn navy yard.

No Lake Ship Cancellations

Cleveland, March 11.—Reports which have been current to the effect that many ships awarded to lake yards and upon which construtions had not yet been begun were to be canceled by the Emergency Fleet corporation now are definitely dispelled. It is positively stated that no cancellations are to be made and that construction is to go forward as speedily as possible. Accordingly some of the lake yards have placed sizable tonnages with the mills completing their requirements for work under contract. The cancellation talk mainly has applied to the 60 or 70 vessels last awarded to the lake yards by the Fleet corporation. The 2000 to 2500-ton requirements for the blast furnace plant of the Indian Iron & Steel Co., in India, have not yet been placed. Some eastern mills now will quote 3.00c, Pittsburgh, on attractive orders for boiler steel carrying extras for western shipment, thereby absorbing the freight.

Release Ship Plates

Chicago, March 11.—Mills having tonnages of ship plates on their books have been in an uncertain state since suspension orders were entered but occasional releases are sufficient to prevent any shortening of production. At present releases have been given on material for about 15 ships building at Pacific yards but about 100 are still under suspension.

Less Demand

For Tin Plate Shown by Operations—Valley Mills Do Better

Pittsburgh, March 11.—Demands, both new and old, upon makers of tin plate have dwindled considerably in the past week and mill operations are quick to reflect the change. The American Sheet & Tin Plate Co. still has 239 of its 240 tin mills in operation but this week's schedule calls for 14 instead of 16 turns, bringing the rate of operations below the 99 per cent of recent weeks. Expectations that prices will be lower as a result of the recent New York conference of steelmakers and the representative of the department of commerce tend to make buyers cautious both on new purchases and to some extent in the matter of specifications against old orders. One interesting development recently has been the attempt of a fairly large can manufacturer to enter his April specifications at prices below the market. It is late for an April specification to be filled, although by virtue of the existence of fair-sized warehouse stocks, part of it might be met, but the demand for a lower price has met no response. Independent mills are running less than 50 per cent of capacity and not a few of them are down entirely. It is understood that some manufacturers have a fair stock of tin plate on hand and are not insisting on the usual 45 days leeway on specifications.

More Tonnage is Placed

Youngstown, O., March 10.—Consumers of tin plate are inquiring more freely from the mills in this district and are placing considerable business. It is heard enough export and domestic business is booked to keep over 85 per cent of the tin mills here busy for several weeks. The leading producer is operating 16 tin mills this week. Another maker is operating at 100 per cent capacity.

Export Steel Demand Good

Large Inquiries Appear Steadily for Various Forms—Wire Rods Sold —British Fix Minimum on Shell Rounds—Alloy Tonnage Closed

New York, March 10.—The British government, which was regarded as being anxious to dispose of its shell steel in this country, has cabled its representative here not to sell any more shell rounds at less than £7 Sterling, at the point of storage. This is equivalent to $33.25, at the present rate of exchange. It is understood that if this price cannot be realized, the steel will be shipped to England. Approximately 60,000 tons of 5-inch and 6-inch rounds are involved. The British government also has a large stock of shell ingots in this country, but it is not known whether the price limit affects the ingots also.

Huge inquiries for semifinished steel continue to come from foreign sources. In fact, it is the rule, rather than the exception, for representative export houses to receive inquiries for 25,000 tons of billets or wire rods, daily. None of these inquiries are being closed. In some cases a willingness is shown to shade present prices, especially where British makers are competitors. One large export house, in a quotation during the past couple of days, shaded the prevailing market price on open-hearth wire rods.

Export Inquiries Numerous

Pittsburgh, March 11.—Export inquiries for semifinished steel are quite numerous but save in the case of wire rods, the amount of actual business is small. Inquiries for wire rods run from 1000 to 3000 tons and one Pittsburgh district independent has closed on a few such inquiries. The business involves both soft and hard rods. High carbon rods for export are selling from $65 to $67, Pittsburgh, while No. 5 common rods are moving at $57, Pittsburgh. These prices are the same as are being quoted to domestic consumers. Inquiries for skelp and English and Scotch pipemakers are numerous but not a great deal of business has been booked. Inquiries for blooms, billets and sheet bars are heavy but only small sales are taking place. One inquiry calling for 2700 tons of billets is reported. Trading is not especially active as far as domestic consumers are concerned. Finishing mills are gaging their purchases closely by their sales and since the latter are entirely in small lots for prompt shipment, demand for rerolling steel is along similar lines. Prices are well maintained by manufacturers in this district.

Automobile Makers Fair Buyers

Pittsburgh, March 11.—Automobile builders are fairly steady buyers of cold rolled strip steel but not much demand is coming from any other source and new operations continue to hover around 50 per cent of capacity. Expectations of lower prices make buyers rather cautious. Little is going on in hot rolled strip steel, regular makers of which are quoting a base of 3.80c Pittsburgh for steel of stamping quality while 3.30c Pittsburgh is being quoted by light bar, light plate and hoop and band mills.

Auto Trade Takes Tonnage

Cleveland, March 11.—Automobile trade buying is reflected in the situation in semifinished material. Consumers of sheet bars in some cases are drawing upon the mills for tonnages in excess of their monthly contract quotas. There continues to be considerable buying of alloy steels by auto parts manufacturers. One inquiry for 2500 tons of spring steel has been satisfied, the business going to several makers. A large northern Ohio maker of roller bearings has been inquiring for a considerable tonnage of alloy steel but this is regarded largely at this moment as an attempt to feel the market. Alloy steel prices continue somewhat irregular and some business placed in the week went at concessions. There is practically no new buying in billets or sheet bars in view of price uncertainties. Producers in this district have good contracts on their books but are not receiving specifications in full amount. Definite reports continue of willingness of some semifinished makers to shade prices and these cuts especially are ascribed to slabs.

Rail Tonnage

May be Released With Lower Prices —1,000,000 Tons Needed

Pittsburgh, March 11.—Out of the lower prices expected to result from this week's conference of the committee of the American Iron and Steel institute and the industrial board of the department of commerce liberal orders for rails it is believed will arise. The price concessions, which it is expected will be made, will include rails and other railroad requirements and since one of the reasons for the price revision is to give the government a chance to start postwar activities, it is considered that no better evidence of its good faith could be shown than by rail purchases. It is said that requirements of the railroads under federal domination are 2,000,000 tons, but that 1,000,000 tons might tide them over this year. Failure of the last congress to pass the $750,000,000 revolving fund appropriation is not looked upon as an obstacle to the placing of railroad administration orders, as it is believed the necessary funds will be provided either by the federal finance corporation or by private banking interests. The Steel corporation is fairly well provided with rail tonnage, both the Tennessee Coal, Iron & Railroad Co. and the Illinois Steel Co. having several weeks' business in sight. The Carnegie Steel Co. is not entirely without rail orders, but the Edgar Thomson works, its principal rail mill, now is turning out more sheet bars than rails. Light rail business almost is negligible. Demand for spikes, both standard and small, is purely hand-to-mouth.

Roads Are Buying Nothing

Chicago, March 11.—Although railroad purchasing agents have been fairly active in the market recently, buying track fastenings to use in laying the rails now being delivered on old orders, the recent failure of congress to provide funds has cut off even this buying. As a result railroads are entirely out of the market and nothing new is being booked from this source. Car buying has been absent for several weeks and under the circumstances nothing is to be expected from that department.

Moderate Orders

Coming Out in Wire Products— American Runs 80 Per Cent

Pittsburgh, March 11.—Demands upon the wire products manufacturers still are moderate both in number and in volume. Jobbers, through whom the great bulk of the production of wire products is marketed, will not be convinced that present prices will hold and consequently are merely taking on supplies as needed. The American Steel & Wire Co. is operating its mills at slightly under 80 per cent of capacity, but independent mill operations are much lower. Some export inquiries are coming out but they are not productive of much business. Sales to South America are held up by the fact that the port of Buenos Aires is practically closed by the strike of the longshoremen. The strike of the harbormen in New York also is a restrictive factor.

Good Demand at Buffalo

Buffalo, March 11.—There is a good demand for wire nails, wire, staples and wire rods. Wire mills are running full on orders.

May Buy Wheel Plant

Despite admitted opposition on the part of some directors it is understood that the American Steel Foundries, Chicago, is going forward with negotiations for the purchase of the Griffin Wheel Co., Chicago. Directors in favor of the deal desire to create an issue of $25,000,000 preferred stock to buy the wheel company and other properties. It has been unofficially reported that approximately $10,000,000 seven per cent preferred stock would be issued in payment for the $9,282,000 Griffin Wheel common stock. If that were done it is thought possible the $6,000,000 Griffin preferred would be left outstanding. The Griffin Wheel Co. manufactures chilled iron car wheels for freight and passenger cars, engine tenders, logging and mining machinery, traveling cranes, sheaves and brass castings and other products. It owns plants having a daily capacity of 600 wheels in Boston, Detroit, Pullman, Chicago proper, Chicago stockyards, St. Paul, Denver, Kansas City, Tacoma and Los Angeles.

Steel Ingot

Production for February is Lowest During the Past Year

Steel ingot production for February shows a decrease of 11.48 per cent from the output of the previous month, according to the figures of the American Iron and Steel institute. The total February production of 29 companies which made about 85.10 per cent of the country's steel ingot production in 1917, was 2,688,011 tons. This compared with January's total of 3,082,427 tons shows a decline of 394,416 tons. The total is the lowest since January and February, 1918, when the output was 2,203,845 tons and 2,273,741 tons respectively. As against December's total of 2,992,306 tons, it shows a decrease of 304,295 tons. Much of the loss resulted from the shorter month, although calculating February's total on a 31-day basis with the daily average output of 96,000 tons, the record would still be about 102,000 tons lower than January's total.

Open-hearth production was 2,026,963 tons as against 2,325,802 tons in January, a decrease of 298,839 tons and a loss of 246,226 tons from December's output of 2,273,189 tons. Bessemer steel output fell from 749,346 tons in January and 706,844 tons in December to 655,206 tons, a decrease of 94,140 and 51,638 tons respectively. The decreases in open-hearth and bessemer steel output were proportionately equal.

Following are the institute's production figures from January, 1918, to February, 1919:

Months—1918:	Open hearth, gross tons	Bessemer, gross tons	All other, gross tons	Total, gross tons
Jan.	1,763,356	429,588	10,901	2,203,845
Feb.	1,805,233	454,457	14,051	2,273,741
Mar.	2,331,048	763,255	16,078	3,110,381
Apr.	2,377,974	769,249	16,187	3,163,410
May	2,475,131	796,244	15,858	3,287,233
June	2,281,718	786,380	15,348	3,083,446
July	2,311,545	784,997	17,093	3,113,635
Aug.	2,299,177	766,860	17,643	3,083,680
Sep.	2,407,993	772,863	16,802	3,197,658
Oct.	2,527,776	807,043	17,377	3,352,196
Nov.	2,291,720	753,409	15,631	3,060,760
Dec.	2,273,189	706,844	12,273	2,992,306
Total ..	27,145,860	8,591,189	185,242	35,922,291
Jan.	2,325,802	749,346	7,279	3,082,427
February	2,026,963	655,206	5,842	2,688,011

Ore Prices in Abeyance, Depend on Conference

While prices of iron ore for the season of 1919 have not yet been determined operators are hopeful that something tangible will result from the conference of representatives of the iron and steel industry with government officials on the Redfield price-suggestion plan. One of the leading operators at Cleveland expressed the opinion that unless some agreement to the contrary is made at the Washington conference, ore prices will remain the same as they were last season. Unless the railroad administration reduces the freight rate on ore from the mines in Minnesota to the docks, he said, it practically is a foregone conclusion that the prices cannot be reduced. This, and uncertainties as to lake freight rates, have had a deterring influence on the operators in determining prices for the new season.

As to the freight rate adjustment for which ore men have been waiting eagerly, no decision has been made by the railroad administration. The operators petitioned for a restoration of the former Minnesota rate of 63½ cents and while they showed the administration that such a rate would be justified, the opinion prevails that a compromise between the present rate of $1 and the old rate is the best that may be expected.

Abandon Neville Plant

Washington, March 12.—Confirming reports previously published the war department has officially announced Neville island ordnance plant will be entirely abandoned within a few months. The building which has been erected eventually will be torn down. The island will be used for storage purposes so long as needed to relieve congestion at other ordnance depots after which material stored there will be removed and building salvaged. The island is to be restored to original owners. The official announcement states all contracts with the Steel corporation for construction work and such tools and other equipment as are nearing completion will be finished and transferred to various government arsenals.

The Nonferrous Metals

Copper **Lead** **Spelter** **Tin**

	Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	Aluminum	Spot antimony
March 5	14.875	72.50	5.25	6.20	33.00	7.125
March 6	14.875	72.50	5.25	6.20	33.00	7.00
March 7	14.875	72.50	5.25	6.20	33.00	7.00
March 10	15.00	72.50	5.25	6.15	33.00	7.00
March 11	15.00	72.50	5.25	6.15	33.00	7.00

†United States Steel Products Co.'s price to consumers, dealers and jobbers.
‡American Smelting & Refining Co.'s price.

NEW YORK, March 11.—Several important developments affecting the nonferrous metal markets have taken place in recent weeks, although the markets have not reflected these developments to much extent as yet. The enactment of the bill validating war contracts has helped sentiment somewhat. Already some of the large producers of lead and spelter have been notified by the claims board that their claims are allowed, although they do not know how soon they will receive payment. Their customers also are about to receive fair treatment, enabling them to resume business on a more normal scale. The disbursement of upwards of $2,500,000,000 in claims is expected to stimulate business considerably.

While the failure of congress to pass the general deficiency bill carrying a $750,000,000 revolving fund for the railroads was the ground for some misgiving, this feeling has been relieved by the assurance that bankers would give the railroads assistance necessary for new equipment and construction work.

The plan of the government to co-operate with steel producers and other key industries to establish prices at levels where consumers may be induced to buy, is considered another bull argument in the nonferrous metals, which already have been scaled down practically to a peace basis in the absence of new buying as a result of continued high prices of steel and building materials.

Of more specific interest to the nonferrous metal industries have been the negotiations of the war department with producers of copper and spelter, looking toward the disposition of government stocks of these metals. It now is proposed to permit the copper producers to market the government copper through regular channels over the next 15 months at the going market price.

Copper sheets were reduced yesterday afternoon to 22.50c, while other copper and brass products remain unchanged.

The market for electrolytic copper declined to 14.50c March 4, at which level it struck bottom and recovered to about 15c on March 7. Large sellers refused to go below 15c at any time. About 20,000,000 to 25,000,000 pounds of copper were disposed of last week. Owing to the narrow spread between electrolytic copper and crucible copper scrap, it has been impossible for makers of casting copper to do business, excepting on a toll basis. Some sellers have been taking care of their regular trade with electrolytic copper.

The spelter market has continued weak, reflecting continued overproduction and gradually increasing stocks. Prime western spelter sold last week at 6.20c, but opened this week lower, as low as 6.15c being done. Inquiry is extremely light. Grade A spelter prices range from 7c to 8.50c, f.o.b. New York.

Price Plan Details to be Clarified

Active Participation of Iron and Steel Industry Believed Awaits Further Assurances Regarding Application of Antitrust Laws and Other Points—Only Basic Products to be Fixed—Wage Question Left to Employers

WASHINGTON, March 11.—Lower iron and steel prices, effective immediately or at the beginning of the second quarter, April 1, are possibilities of the conference of the special committee of the American Iron and Steel institute and the new industrial board of the department of commerce originally called for Washington, Wednesday, but postponed to March 19 on account of the illness of Judge Gary. While the action of the members of the American Iron and Steel institute at New York last week is regarded by government officials as assuring the complete co-operation of the industry in the Redfield price plan, opinion still exists here that the government will have to make additional assurances to the iron and steel manufacturers before the latter will agree to participate. It is the possibility of this new assurance which has not yet been made public, if one exists at all, that leads to the belief that the steel men will take advantage of the opportunity to jointly announce lower price levels similar to that which became effective the first of this year.

The committee named by the iron and steel manufacturers is practically the same as that which represented the industry during the war and this committee like the former body has power to act in the present case. Upon the judgment of the members of the committee depends whether the industry will subscribe to the plan and announce new prices. If the necessary assurance of government protection against interference with antitrust laws is given, the prices to be suggested by the producers for approval of the industrial board likely will be only on approximately a dozen basic products while the industry will be expected to make similar revisions in the entire price schedules as originally recommended by the American Iron and Steel institute to the price-fixing committee of the war industries board.

Whatever prices, if any, are thus established so far as steel is concerned, are least likely to be taken up by the industrial board which expects the first price reductions immediately will put the law of supply and demand into operation as the signal for business everywhere to begin. In view of this, the expectation is held by members of the board that the suggested prices will be continued at whatever levels the law of supply and demand dictates and the government would be satisfied. The new board will take no action which in itself will reduce wages. This phase of the problem is being left entirely with the manufacturers who would be guided by the operation of the law of supply and demand.

Coke and fuel prices will not be taken up by the industrial board since these materials are under the Lever bill which gives power over them until peace.

SECRETARY REDFIELD and Chairman George N. Peek of the industrial board have declared the plan purely is voluntary, and the latter says the Overman bill will not be invoked. The announcement of Sunday which also gave the personnel of the industrial board declared the new board is made up of war industries board men with war industries board's ideals but without the war industries board's authority. No attempt will be made by the industries board to make any lower prices that may be named, retroactive to Jan. 1, as has been suggested. Chairman Peek says retroactivity of prices is decidedly an individual problem for each manufacturer to determine for himself.

Chairman Peek says there is nothing to be feared from antitrust legislation as the plan provided for combinations to create trade rather than to restrain trade. Edward T. Quagley, acting solicitor of the department of commerce, will sit at the price conferences and will guide the board and industrial representative from any action which might be questionable in law, Chairman Peek states. Whether the board is serious in its intention to force high cost producers out of business as stated in its announcement issued Sunday has not been made clear. The committee of iron and steel manufacturers is not expected to take part in any plan which would have this effect.

The personnel of the industrial board includes Mr. Peek as chairman, formerly acting vice chairman of the war industries board and vice president of Deere & Co., Moline, Ill.; Thomas K. Glenn, president, Atlantic Steel Co., Atlanta, Ga.; Samuel P. Bush, president, Buckeye Steel Castings Co., Columbus, O.; Thomas C. Powell, director of capital expenditures of the railroad administration; William Ritter, president, W. M. Ritter Lumber Co., Columbus, O., and Welch, W. Va.; Anthony Caminetti, commissioner of immigration of the department of labor, and George R. James, president, the Wm. R. Moore Dry Goods Co., Memphis, Tenn. Mr. Bush formerly was chief of the facilities division of the war industries board, Mr. Ritter formerly was assistant to Mr. Peek in the old board and Mr. Powell formerly was director of inland traffic of the war industries board. Mr. James formerly was chief of the cotton and cotton linters section of the war industries board. In private life Mr. Powell is vice president of the Southern railroad with headquarters at Cincinnati. Mr. Powell is the only government representative on the board but it is understood he will co-ordinate other departments and speak for them. The fact that he is the only government official on the board and that Mr. Peek says Mr. Powell was picked because the railroads normally buy approximately 35 per cent of the steel output appears to verify the early opinion that the entire plan was proposed largely to force lower steel for the railroads.

The American Federation of Labor sees in the price plan a move to reduce wages which accounts for

the fact that Hugh Frayne, who has asked to serve, is not included in the personnel. Labor's attitude is clearly stated in the announcement that organized labor will refuse to share in the results of price adjustment if living standards are to be endangered and also in reply to the federal reserve board which said that labor should bear its share.

Chairman Peek's belief is that plan will get all basic commodities on a lower level within 60 to 90 days and that this will so establish confidence with every one will begin buying at once. In this connection it may be pointed out that recently Secretary Wilson expressed his optimism over business prospects, declaring that industry and business would resume within four to six months after the signing of the armistice. Four months are up today leaving two months yet to go if Mr. Wilson's prediction is to be fulfilled.

Those in Washington still opposed to the Redfield plan point out that the action of the iron and steel manufacturers last week was nothing other than a coureous acceptance of the invitation of Secretary Redfield, approved by the President, to co-operate. How far the iron and steel men will go in this co-operation, depends, as already stated, upon the assurance the government yet must give that there is no legal danger in price discussions. Iron and steel producers still are aware that some of their conferences under the authority of the war industries board have been questioned by the department of justice. Whether the new attorney general, A. Mitchell Palmer, has any different views has not been stated.

Industry Quickly Votes for Co-operation

NEW YORK, March 11.—After Chairman George N. Peek of the new industrial board of the department of commerce had explained the purposes and the expected procedure of the so-called Redfield stabilized price plan and Chairman E. H. Gary had presented the favorable recommendations of the special committee of American Iron and Steel institute directors appointed to study the proposal, iron and steel producers assembled in a general meeting at New York, March 7, voted unanimously to accept the government's invitation to co-operate in the price readjustment movement. The decision and the quick and united fashion by which it was reached, occasioned considerable surprise, in view of the fact that prior to the meeting, general sentiment among the rank and file of the producers was opposed to the Redfield plan as it had been explained up to that time. It is understood the manufacturers finally voted in favor of lending the co-operation of the industry because the methods outlined by Chairman Peek offered the best available means for speedily ending the present stagnation of buying, through bringing about an orderly and equitable readjustment.

The execution of the industry's co-operation was left to the former general committee on steel and steel products of the American Iron and Steel institute with the additions of special representatives of the pig iron and iron ore interests, the naming of whom was left to subsequent action of committees from these industries. This action was taken because of the inability of H. G. Dalton, of Pickands, Mather & Co., Cleveland, previously the representative of pig iron and iron ore on the general institute committee, to serve on the new body because of his absence in Florida. Later, Leonard W. Peckett, president of the Empire Steel & Iron Co., and John A. Savage of Duluth, were named as the pig iron and iron ore members of the committee.

The other members of the co-operating committee of the industry are E. H. Gary, James A. Farrell, C. H. McCullough who as president of the Lackawanna Steel Co. takes the place of former president E. A. S. Clarke, James A. Campbell, C. M. Schwab, E. G. Grace, A. F. Huston, I. E. Black, J. A. Burden, A. C. Dinkey, W. L. King, John A. Topping and H. H. Cook.

Judge Gary in his address emphasized the fact the trade conditions in iron and steel were better than had been pictured and that genuine unemployment had been greatly exaggerated. Judge Gary said:

"We have had no meeting nor occasion for a meeting of the iron and steel industry generally since Dec. 9 last, when we gathered to discuss and decide what recommendation to make to the war industries board concerning prices, pursuant to the request of that board or its price-fixing committee. Between the time the request was made and the day fixed for the meeting in Washington, conditions changed; and as a consequence, our report to the war industries board was made unnecessary, although the committee which had been designated by the steel interests appeared in Washington at the appointed time and place.

"Notwithstanding at our meeting here there were, at the beginning, differences of opinion concerning our proposed action, I think time has demonstrated that our final conclusion was wise. Circumstances justified the decision to recommend moderate reductions in prices of our commodities, and perhaps the fact that we voluntarily made reductions, tended to stabilize business conditions generally.

"At any rate, the disposition of the large number of men who attended the meeting, to harmonize their views and to place their interests in the hands of a few men who had proved their efficiency by hard work, continued patience and painstaking effort, redounded to the credit of all who participated. Consideration by each for the welfare of all others, and an effort to co-operate in advancing and protecting the interests of everyone, so far as practicable and right, have dominated the minds of those who are connected with our industry and have been and will continue to be of great benefit so long as we are controlled by these principles.

"On this occasion we have met to discuss and consider the question of co-operation as presented to us by the industrial board of the department

Navy Rejects All Bids Expecting Cut

WASHINGTON, March 11.—Expecting the Redfield price suggestion plan to result in lower figures for steel, the navy department has rejected bids submitted the latter part of February by producers on approximately 20,000 tons of plates, shapes and bars for four battleships and one fuel ship. The tonnage involved represents about one-third of the total requirements for these ships and would supply needs up to early summer, when additional requirements will be asked for. The bids rejected were all at prevailing market levels of 3.00c Pittsburgh, 2.80c Pittsburgh and 2.70c Pittsburgh for plates, shapes and bars, respectively. The navy now feeling that the Redfield plan will mean reduction of these prices has readvertised for new bids to be opened March 21. The decision of the department to halt the building of battle cruisers will not have any immediate effect on these requirements.

of commerce. This board has been appointed by the secretary of commerce, for the purpose of conferring with the different lines of industry, in the effort to stabilize business conditions generally throughout the country. The secretary of commerce, after consideration and investigation, reached the conclusion that during the transition period from a war basis to a peace basis there might be disturbances in business, with possible reactions, if not depressions, decreases in or interruptions to employment, and delays in extending enterprise; and after conferring with other members of the cabinet and the President of the United States, he appointed the industrial board referred to. The secretary of commerce, a few days since, addressed a letter to the president of the American Iron and Steel institute, in which the secretary stated his plans and requested co-operation by our industry, and also opportunity on the part of Mr. George N. Peek, chairman of the board, to explain in detail what was proposed. The president of the institute thereupon called together some of the leading manufacturers who were readily accessible, before whom Mr. Peek appeared and discussed at considerable length his plans and reasons for their adoption, after which the present meeting was called.

"It is my opinion, and I believe the opinion of most of the large number of men who are assembled here today, that since the armistice was signed the iron and steel trade, generally speaking, has been better than it was represented to be in some of the publications; that it has been better than we feared it would be; that all things considered, we have no reason to complain; and that the number of unemployed has been much less than one would suppose from some of the statements which have been freely circulated. We know that, as a matter of fact, on account of the ordinary turn-over in labor, and other reasons which result in idleness, temporary or otherwise, there are always large numbers of unemployed; and, therefore, it frequently happens that when people are expecting in consequence of unusual conditions an increase in unemployment, exaggerations are made. Personally, I have believed if business men and others who are interested in business conditions and results would retain their composure and courage we would gradually, if moderately, return to a condition normal and satisfactory.

"The steel industry is still more or less the barometer of trade. It involves large production, large amounts of working capital, large numbers of employes and has a decided influence upon the commercial and financial interests of the country. We occupy positions of great responsibility. What we do at this meeting may have an important bearing upon the whole business situation. We must not, we will not, intentionally make a mistake. During the war we have been called upon to do great things, and we have responded cheerfully and faithfully. I think we are bound to say in the main we have been treated fairly. We have served the government to the best of our ability, and governmental representatives in positive language, have commended our efforts.

"Now we are called upon again by a government official to co-operate with the government in the endeavor to stabilize business conditions; to protect, so far as practicable and reasonable, capital and labor, for they must always go hand in hand if success for either is achieved; and to bring about results which no reasonable man will deny are desirable. The methods were not suggested by us.

"Those who have been consulted personally, including all the members of the board of directors of the institute who could be reached, have decided to recommend to this meeting that we promptly accept the invitation of the government to co-operate, so far as proper and consistent, in the cause which has been presented and has been assigned to the industrial board made up of Mr. Peek as chairman, and other equally worthy men who may be depended upon to act fairly and intelligently.

"There is ahead of us large business prosperity. We may hasten or retard its progress, depending upon our attitude. If we avail ourselves of the opportunities offered we shall succeed. We must be resolute, fair-minded and confident. We must apply the spirit of co-operation whenever practicable. We must have faith in ourselves, in each other and in our country. Peace has not yet been established throughout the world and this fact more or less adversely affects industry. Still we have reason to expect an early settlement of most, if not all, of the important differences between nations. A League of Nations soon will be agreed upon, for the sentiment in its favor is well nigh universal among the civilized peoples of all countries. The criticisms which are found in the speeches recently made in the congress of the United States, with possibly slight exceptions, were not intended to be understood as opposing a practicable and workable agreement between leading countries which will result in preventing future prolonged international conflicts. The objections made relate to some of the conditions and terms contained in the covenant, or constitution, which has been reported for consideration by the general council and, in most cases, to proposed forms of procedure. Surely the great men who participate in the peace council will find a basis and a method for carrying into effect what they, and the hundred millions whom they represent, most earnestly desire.

"And then, after peace is declared and made secure and with a cordial and reasonable co-operation between the government and business interests, we should realize the greatest prosperity in our experience."

Believe Large Tonnage Waits Stable Prices

New York, March 11.—Although it is believed that a tremendous amount of business is dammed up in this country, it is regarded as certain that there will be no marked disposition to place it until the market has reached a level which consumers will recognize as being somewhere near bottom. It is felt that most costs, and particularly labor, have not yet begun to move downward, and that until they do move down it will be impossible to establish prices which can be submitted to consumers with the assurance that they are rock bottom. It is regarded here as inevitable that the cost of labor will move down. Consequently, it is believed certain that costs as well as selling prices in the future will be less than now. Hence, acceptance by the iron and steel industry of Secretary Redfield's proposal to establish prices at a reduced level caused considerable surprise in the rank and file of the trade here.

It is the feeling of the majority of those interested here that any such price reductions as the steel industry may be prepared to grant at this time will not be considered as final by consumers generally. Hence, it is felt the bulk of the business which will be placed as a result of the imminent readjustment downwards will be comprised of railroad, naval and other requirements in the hands of the government. While much railroad tonnage is needed and large other tonnages undoubtedly will be placed by the government, the feeling here is that buying by private consumers, will, in a large measure, continue to be held up as at present in the expectation that when all restraints finally are removed and business again ultimately settles down to the law of supply and demand, prices then and then only actually will hit the bottom.

It is felt that the establishment of prices at moderate reductions from those now prevailing will, on the other hand, result advantageously to many of the steelmakers. Some of these interests still have good-sized order books, and, consequently, will be able to continue shipments at not far from the present rate for at least 60 days, and in some cases longer. In the meantime, materials of all kinds are going into consumption. Hence, the substitution of a moderate agreed level for the low prices which undoubtedly would be brought about were the situation determined by the law of supply and demand, not only will prevent readjustments which might have to be made on old orders if prices went down radically, but may be expected to bridge the gap until the next buying movement materializes. Then too, by adhering to a moderate level, steelmakers will not be forced to tempt the next buying movement with such low prices to start with as otherwise might materialize.

Universal Mill Rolls Strip Steel

Roughing Unit is of Massive Construction, Each Housing Weighing 42 Tons—Spring of Mill When Rolling High-Carbon Steel is Approximately 0.001 Inch—Equipment Designed to Eliminate Scale

MANUFACTURERS of automobiles, airplanes, tractors and railway cars, during the past few years, have made such rapid strides in adapting strip-steel for the fabrication of various parts that research work on both standard and alloy grades has become necessary. To meet this new condition the National Pressed Steel Co., Massillon, O., was organized for the purpose of manufacturing strip-steel. Nearly all the officials were familiar with the difficulties incident to drawing, stamping, forming and pressing steel products. Their aim was to produce a wide range of sizes of hot and cold-rolled strips which would have such chemical and physical qualities as to make them suitable for any particular class of fabrication. This led the officials to center their efforts on research work.

They found that while some study and excellent results were obtained in eliminating scale, little attention had been paid to the mechanical treatment of strip-steel. Representative lots of strip-steel intended for stamping and drawing purposes were carefully examined microscopically, chemically, and physically. After a careful consideration and study of the test data, the officials decided to deviate from standard methods of strip-steel manufacture. Before designing the plant and its equipment, which required many innovations in the heating and rolling processes, it was considered necessary to consult strip-steel consumers in order to obtain further data and authentic information.

Reliable Data Solicited

A questionnaire containing 37 interrogations relating to the size, finish, analysis, quality, physical properties, etc., of strip-steel was formulated. Copies were mailed to a large number of manufacturers producing pressed and drawn-steel specialties. Approximately 47 per cent of the questionnaires were answered and returned. With complete data and reliable information then at hand, the design of the plant was undertaken by the company's engineers. In spite of adverse conditions in the material and machinery markets, to say nothing of the weather, in 10 months and one day, from the time the ground was broken, the plant was placed in operation in December, 1917.

The plant of the National Pressed Steel Co. adjoins that of the Central Steel Co. in the southern part of Massillon. The plant is laid out so that it may be enlarged at any time business conditions demand. The sole output of the mill is strip steel, the capacity being from 5000 to 7000 tons per month. The strips are made in gages from Nos. 16 to 00 and from 3 to 24 inches wide. Billets and slabs, which are purchased from outside makers, are brought to the mill and unloaded by means of a rectangular magnet. The latter is suspended by means of a hook and cable from a 7½-ton traveling crane which was built by the Cleveland Crane & Engineering Co., Wickliffe, O. After the semifinished material is carefully inspected for seams, pipes and other defects, it is picked up by the magnet and transferred to the stock yard. This yard adjoins the mill building and has a stocking capacity of approximately 20,000 tons of steel.

From the stock piles, the billets or slabs as the case may be, depending of course upon the size and gage of strips the mill is rolling, are transferred to the heating-furnace platform and placed on a table directly in front of the pusher. The stock-yard unloading crane is used for making the transfer. The table is built outside the mill building and is supported on

FIG. 1—AFTER THE STRIP STEEL IS GIVEN THE FINISHING PASS IT IS SLID ACROSS THE TRANSFER TABLE WHICH CONNECTS THE TWO ROLLER TABLES AND RUN THROUGH THE LEVELER ROLLS

FIG. 2—SOLID STEEL-PLATE FLYWHEEL, COUPLING, REDUCTION-GEAR SET AND JACK-SHAFTS FOR THE UNIVERSAL ROUGHING MILL. FIG. 3—SLABS FROM THE HEATING FURNACES ARE TRANSFERRED OVER SLOPING SKIDS ONTO AN APPROACH TABLE WHICH DELIVERS THEM TO THE 24-INCH ROUGHING MILL

a concrete foundation approximately 18 feet high. The charging end of this furnace, the pusher mechanism and part of the pusher are shown in Fig. 6.

The pusher is equipped with a double-arm ram which shoves the slabs into the heating furnace one at a time. Two furnaces are provided. As a slab enters the furnace it pushes directly against the one in front and this causes the slab nearest the discharge end to drop out of the furnace. The rate of travel through the heating furnace is such that when the slab leaves the furnace it is heated to the desired temperature for rolling. Its color at this stage is cherry red. The design of the furnaces was carefully worked out by the company's engineers to insure uniform heating. The furnaces have a heating capacity of 30 to 50 tons of steel per hour. The auxiliary equipment such as the pushers, drawing machinery, door hoists and transfer cables are electrically driven. Powdered coal is used for firing the furnaces. It is ground to pass through a 200-mesh screen in a crushing plant located near the stock yard. The powdered coal equipment was built by the Bonnot Co., Canton, O.

As the heated slab is pushed out of the furnace it falls onto a cable which delivers it onto a chain-type transfer table operating at right angles. The jar which the slab receives on falling out of the furnace loosens a considerable amount of scale which forms on the surface during the heating process. A transfer cable elevates the slab and then delivers it by means of sloping skids onto the mill approach table where it strikes against a sideguard. Here again considerable scale is loosened by the sudden jar. A heated slab positioned on the approach table at the discharge end of one of the skids is shown in Fig. 3.

The approach table, which is 80 feet long, with rollers operating at a speed of 700 to 800 feet per minute, directs the slabs into the roughing mill. The latter is a 2-high, 24-inch, reversing unit, with rolls which have a maximum speed of 200 revolutions per minute. This mill was built by the National Roll & Foundry Co., Avonmore, Pa. It is of the universal type; that is, two sets of rolls are provided, one set being placed in a vertical position and the other set horizontally. By means of this arrangement, proper side rolling as well as surface rolling is assured. The housings weigh approximately 42 tons each and all other parts are correspondingly heavy as shown in Fig. 4. The National Pressed Steel Co. produces large quantities of special hot-rolled, alloy strip-steel from No. 16 to No. 00 gages and from 3 to 24 inches wide. Extreme rigidity of the mill and foundations are necessary especially when rolling 0.50 per cent carbon steel and less than 0.001-inch is allowed for the spring of the rolls. The vertical rolls tend to hold the width dimensions to slight variations.

The vertical rolls are connected

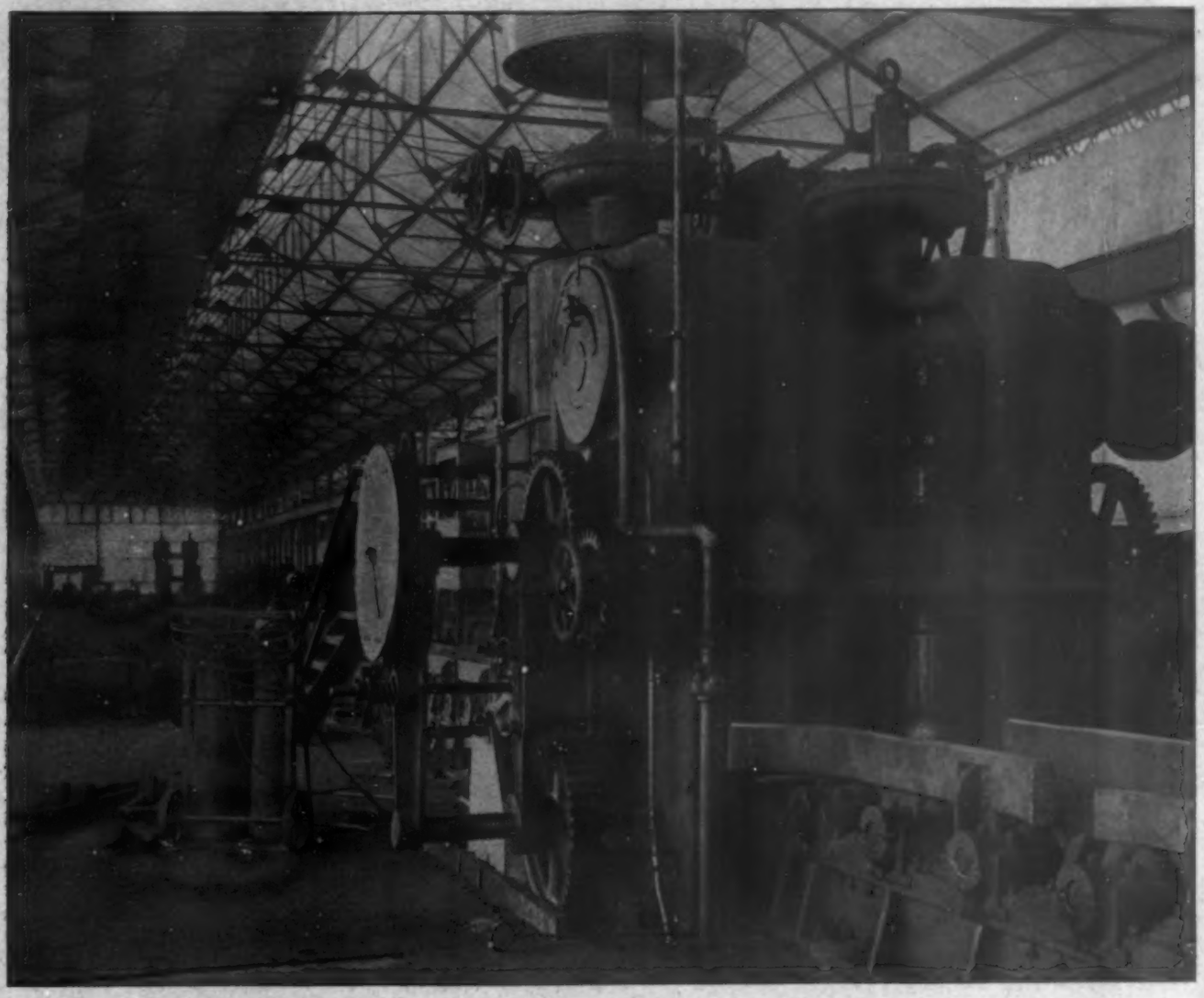


FIG. 4—EACH HOUSING OF THE 24-INCH, REVERSING, ROUGHING MILL WEIGHS 42 TONS. THE MAXIMUM SPEED OF THE MILL ROLLS IS 200 REVOLUTIONS PER MINUTE

through bevel gears to an overhead jack shaft while the upper horizontal roll is connected to its jack shaft by means of keys held in place by a collar. Both jack shafts are driven through reduction gears, the master gear being directly connected to a reversing-type mill motor. The latter, which is housed in the power station adjoining the mill, was designed and built especially for this mill by the Westinghouse Electric & Mfg. Co., Pittsburgh. The reduction gears and gear housings were built by the Fawcus Machine Co., Pittsburgh. To enable the motor to carry the peak loads, a solid, steel-plate fly wheel is provided. It is securely bolted to the main driving shaft and is positioned between the motor and the coupling as shown in Fig. 2. This form of construction is necessary in order to take care of the terrific stresses which are set up when the mill is rolling at maximum, the rim of the fly wheel then revolving at speed of more than 40 miles per hour. The roller's pulpit is elevated over the approach table directly in front of the roughing mill as shown in Fig. 3. A graduated cylinder which operates in conjunction with and indicates the gage between the surface rolls, is positioned on top of the left housing in plain view of the roller. A dial for indicating the gage between the edge rolls is located at the side of the same housing as shown in Fig. 4.

Passes Finishing Process

If a strip is brought to gage on the roughing mill, it is delivered to the runout table and there turned over for inspection. Any scale adhering to the surface is removed. The strip is then slid across the transfer table by means of the chain-type puller and dropped on an approach table which delivers it straight ahead to the leveler rolls. The runout table serving the roughing mill, the transfer table and the leveler approach-table are driven electrically, the operator's pulpit being located at the side midway between the roughing and finishing mills as shown in Fig. 1.

When a slab is to be rolled into a light-gaged strip, the usual roughing operations are performed after which the strip is delivered as formerly outlined onto the 130-foot runout table. But instead of being transferred across the leveler approach-table, the strip is directed straight ahead to the finishing mills, shown in Fig. 1, where it is put through the final process of rolling. The finishing mill, which is a 16-inch, 2-high unit consisting of four rolls, was designed by the officials of the National Pressed Steel Co. The speed of the mill varies from 150 to 200 revolutions per minute according to the gage of strips being rolled. The strip upon issuing from the lower set of rolls is automatically looped and fed into the upper set of rolls on the rear side of the mill, the strip, of course, being returned onto the approach-table. The rolls are driven by a Kramer-type motor which was built by the Westinghouse Electric & Mfg. Co., Pittsburgh.

Upon receiving the finishing pass the strip is transferred to the leveler approach-table and then fed into the leveler rolls. It is next delivered onto the 200-foot runout table straight ahead, and then either coiled or transferred at right angles to a cooling bed. The latter, which is 45 x 160 feet, is of the chain type. After the strip has cooled somewhat it is transferred in the same direction as before across the cooling bed and positioned on a roller table. This directs the steel to a motor-driven shear where it is cut to length and the resultant strips piled mechanically. The strips are then either placed in stock, loaded into railroad cars and shipped as plain hot-rolled strips or transferred to the annealing department for further treatment. The shipping track is brought into the mill near the eastern side of the building as shown in Fig. 5. The capacity of the hot-strip mill is 5000 to 7000 tons per month, depending, of course, upon the dimensions and gage of the material being rolled.

The mill buildings were constructed by the National Pressed Steel Co. and the Massillon Bridge & Structural Co., Massillon, O. The roughing and finishing mills are served by a 10-ton traveling crane with a 5-ton auxiliary hoist and the shipping department by a 7½-ton unit. These cranes were built by the Cleveland Crane & Engineering Co., Wickliffe, O.

Details of Pickling Solution

When specifications call for pickled or heat-treated strips, the latter are transferred to the finishing department which occupies a floor space of 40 x 400 feet. This department is equipped with a 10-ton Cleveland crane. It also is provided with the necessary slitting, shearing, oiling, pickling and heat-treating facilities. In pickling strip-steel whether coiled or flat, it is submerged in a bath of dilute sulphuric acid. The pickling vats installed at this mill are of the plunger type. Steam for heating the pickle liquors is generated in a boiler placed over the annealing-furnace flue. The strips being pickled are kept agitated to make it certain that their entire surface is covered with the liquor. The latter generally consists of a 2 to 6 per cent solution of sulphuric acid depending, of course, upon the amount of scale to be removed.

Following the pickling the strips or coils are rinsed in water in order to remove as far as possible any trace of acid which otherwise would corrode the metal. They are then set on a cast-iron base. A cover is placed over the material and all joints made practically air tight with clay. The box is then placed in an annealing furnace, the temperature of which is increased gradually to the desired degree. The temperature is held constant for a certain time and then decreased until

FIG. 5—STORAGE DEPARTMENT IS HOUSED IN THE FINISHING END OF THE HOT-STRIP MILL BUILDING AND THE PICKLING AND ANNEALING DEPARTMENTS IN THE BAY TO THE LEFT. FIG. 6—CHARGING END OF THE HEATING FURNACES SHOWING PART OF THE PUSHER MECHANISM

the proper anneal has been given. The boxes are removed from the furnace and their contents either dipped in a slurry of lime or passed through a machine which supplies a coat of oil. This tends to prevent further oxidation of the steel. The annealing furnace has a charging capacity of approximately 25 tons and is equipped with pyrometers for controlling the temperature. These instruments are all of the self-recording type and are installed in the superintendent's office.

The officers of the National Pressed Steel Co. are: R. E. Bebb, president; H. M. Naugle, first vice president and general manager; F. J. Griffith, second vice president; A. J. Townsend, third vice president and works manager; and K. R. Jenson, secretary and treasurer.

How to Obtain Efficiency in Use of Coal

BY W. E. SNYDER

DURING the past two years a great deal has been said on the subject of fuel economy, but usually the discussions have been too academic and have failed to give proper consideration to the importance of training boiler plant operators. The assumption seems to be that a superintendent of a plant need but hire an operating crew for the boiler house and then post rules in a few conspicuous places to insure safety and high efficiency. Many boiler plants are operated under the direction of foremen who once were water tenders, and who still are water tenders insofar as their knowledge of their enlarged duties is concerned. Water tending is done by former firemen, and the firemen were formerly ash men or flue blowers, most of whom were recruited from the ranks of laborers. They have acquired a certain familiarity with stokers, boilers, pipes and valves, but they have practically no knowledge of methods necessary to save fuel and labor.

There is no need to discharge such men. The remedy is to apply engineering knowledge in such a systematic way as to enable men of limited understanding to obtain maximum efficiency from their material and equipment. A military organization is made efficient by training individuals in accordance with scientifically established principles. Results would never be accomplished by allowing privates to drill as they might. This principle applies in the boiler house as well as in the army. The operating crews must be trained.

The best way to increase efficiency in the use of fuel is to reduce the amount of heat lost. In order that greatest amount of heat may be obtained from the coal it should go to the boilers properly prepared, and this phase of the subject deserves special consideration. In the following notes on the preparation of coal only that used in the western section of Pennsylvania, from Pittsburgh, upper and lower Freeport, upper and lower Kittanning and Brookville, mines, are referred to. Under normal conditions at the mines, operators try to produce clean coal by penalizing miners who load dirty coal and by having hand pickers on the cars throw out the largest pieces of slate. If there is laxity on the part of the consumer, owing to a large demand for the coal, the result is an increase of slate and dirt. Constant inspection of the coal by consumers, accompanied by occasional trips of the inspector to the mines may serve to keep the amount of incombustible matter in the coal to a minimum.

In general, it does not pay to use the so-called ¾-inch screened coal, which costs more than the straight run of mine. The screen at the mine is usually made of narrow steel bars, placed from ¾ of an inch to 1 inch apart and at an angle of about 45 degrees. The openings between the bars become clogged with small pieces of coal, the screen then taking out only a part of the slack. Coal for chain grates and inclined grate stokers should be crushed so the largest lumps will pass through a 1-inch ring. The fuel then burns uniformly by the time the fire reaches the rear of the grate. The best way to prepare coal for furnaces of this kind at a plant where there are gas producers is to pass the run of mine coal through a coarse crusher so that the largest lumps are broken into cubes 4 or 5 inches square. The coal should then be passed over a rotating or shaking screen of about 1 or 1¼-inch mesh. The screening is done more effectively in this way than when the coal is passed over an inclined bar screen. The coal going through the screen is best adapted for boilers, while the coarser coal is suitable for gas-producer, locomotive and miscellaneous hand-fired furnaces.

Coal coming from the mines in the districts mentioned does not vary so much as to results obtained from its use as does the coal from the same mine when carelessly mined. The author made a series of 20 tests, each test requiring five 24-hour periods, during which a boiler was operated from its normal rating to 60 per cent in excess. Coal from 21 different mines and from five different seams in the districts referred to was used. The coal was fired by intelligent firemen, on flat grates, under a stirling boiler of 275 horsepower. Some of the coal used was from the ¾-inch screen. Notwithstanding the differences in the grades, the mines and the seams, the efficiency of boiler and grate for the entire series of tests only varied between 59.6 per cent and 63.5 per cent, or a difference of 3.9 per cent. This would indicate that only 6.5 per cent more of the poorest coal would be required than if the best were used, all comparisons being made on a dry coal basis, and assuming that the most efficient methods were employed in handling the coal.

From a paper presented at a meeting of the Engineers' Society of Western Pennsylvania, Jan. 21, 1919. The author, W. E. Snyder, is mechanical engineer for the American Steel & Wire Co., Pittsburgh.

Brazil to Grow Trees to Make More Steel

The government of Brazil is planning to stimulate the production of timber to be used as fuel in developing the country's metallurgical resources. Although there are 10 coal mines at work in Brazil their output is insufficient to prevent serious depletion in timber supplies caused by demands of railways and local industries for fuel. Proposals have been put forward for the planting of eucalyptus trees, which, it is thought, would yield wood available for the steel industry within five years. It is estimated that with an expenditure of about $1,500,000 an area of 60,000 acres could be planted with sufficient trees to produce in five years enough timber to insure an output of 150,000 tons of iron ore annually. In the meantime loans are being offered by the government to coal companies.

Stoker Convertible to Forced Draft

Six Prerequisites to Successful Application of Forced Draft Principle in Mechanical Stoking Considered in Development of a New Machine—Nonsifting Grate Surface is One of Several Novel Features

ATTEMPTS by stoker manufacturers to apply forced blast to traveling grate and chain-grate types of stokers is a recognition of the widespread demand on the part of power plant designers for a completely automatic stoker which can be forced to a point of capacity far in excess of the limits of natural draft. Certain conditions, however, should be complied with before such an application can be considered commercially successful. These may be briefly summarized as follows:

Six Conditions to Comply With

1. The stoker must allow the fuel to remain quiet during the combustion period, in order to avoid the formation of clinkers that cause disturbance of the fuel bed when the ash content thereof is in a plastic condition.

2. To avoid the accumulation of refuse in the furnace and consequent fouling of the grate surface, it should be discharged as formed, so that the ash remaining on any unit section of the grate surface is that which results from the burning of a single unit of fuel.

3. There should be no air spaces that are not periodically and completely cleaned by virtue of the automatic operation of the adjacent parts resulting in the disengagement of clinker.

4. Inasmuch as the fuel bed does not require the same volume or pressure of air throughout its extent, the stoker of the future should be divided into compartments in such a manner that the air pressure and volume in each compartment is suited to the requirements of the fuel passing over such compartment.

5. To avoid the wasteful use of steam-driven auxiliaries, the stoker should be readily convertible to the natural draft type during the low load periods.

6. Parts subjected to the heat and fusing action of direct fuel contact must be readily replaceable and subjected to no mechanical stress other than its own support and the support of its portion of the fuel bed.

Since he believed thoroughly in the foregoing principles, Joseph Harrington, of the James A. Brady Foundry Co., Chicago, has developed a machine in which an effort has been made to embody these ideas. It is illustrated herewith.

The stoker consists of cast-iron side frames, carrying the driving gear, hopper front shaft, and feed gate in the usual manner. The side girders are formed of structural steel members built like a truss, permitting stokers of 20 feet in length to be constructed. Transverse members of structural steel support a series of tracks, on which run semisteel chains, which carry and support the grate surface and take up the stress and tension of the chain. These are provided with V-rollers to insure alignment both horizontally and vertically, and reduce the power required to drive the stoker. Attached to these chains is a series of transverse racks or beams on which the clips or bars forming the grate surface are attached.

Method of Conversion

These grate bars are loose enough so that they may be slid over the ends of the racks readily, which prevents the rusting together of adjacent parts. The straight under-surface of these racks makes possible a practically air-tight diaphragm or seal between the adjacent compartments. These compartments occupy the entire space between the chains, communicating on one or both sides to the air duct in the boiler side walls, or below the floor of the boiler room.

A simple form of adjustable damper serves to control the air pressure in the respective compartments. These communicating passages through the side walls terminate in a readily removable door which, when taken off, allows free access to the chambers, so that the mere closing of the damper and the removal of this door serves to put the stoker on a natural draft basis. A simple reversal of this

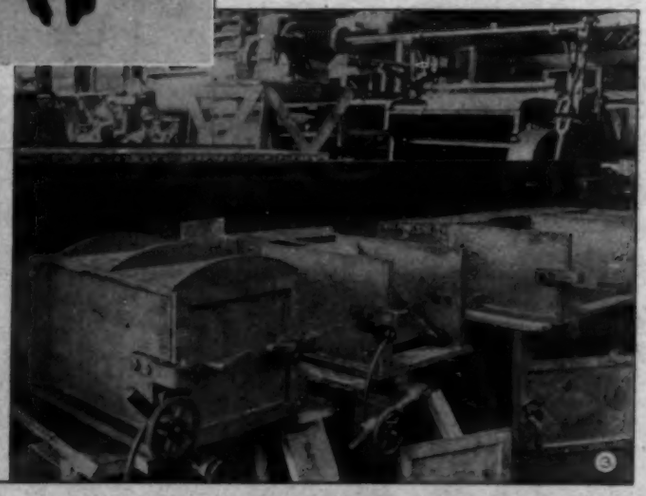


FIG. 1—UNIT CASTINGS OF GRATE BED. AT LEFT IS SHOWN TORTUOUS AIR PASSAGE. FIG. 2—FORCED DRAFT STOKER. DRAFT DOORS AND VALVES AT RIGHT. NOTE SEPARATION OF GRATE BARS AT LEFT. FIG. 3—DETAIL OF DRAFT DOORS AND VALVES. CLEANING IS ACCOMPLISHED THROUGH THESE DOORS

process converts it to a forced blast stoker.

One of the features which Mr. Harrington has incorporated in this mechanical stoker is the nonsifting grate surface which may be applied if desired. An unusual arrangement of the air passages through the grate surface provides a tortuous air passage, shown in Fig. 1, having a horizontal section which prevents the flow of fuel through the grate. There are no restrictions to the free flow of air to all parts of the upper grate surface, large areas and low velocities. Equal distribution of air is thus assured with a consequent uniformity in the combustion of the fuel. Rates of combustion above 75 pounds of coal per square foot per hour are claimed for the Harrington stoker.

Recent Progress of Blast-Furnace Lines

BY WALTER MATHESIUS

Superintendent Blast Furnaces, Illinois Steel Co., Chicago

IN the introductory part of his paper, published in the Feb. 20 issue of THE IRON TRADE REVIEW, J. G. West Jr., enumerated as the four most eminent pre-requisites to good blast furnace operations the uniformity of raw materials, suitable design of apparatus, efficient management and operation, and perfection of mechanical equipment. Without detracting in the least from the importance of any other of these features, I desire to emphasize the necessity of correct design, especially of the furnace proper. The furnace stack practically being inaccessible for the entire duration of a campaign, it is impossible to correct faulty design of the same or any part therefo until after the campaign has come to an end. Since it is a well-known fact that deficiencies in this respect cannot be overcome even by the best of furnace practice the far-reaching influence of the furnace design on the results accomplished during a campaign, which, as a rule, extends a number of years, can be readily conceived.

I wish first to mention some experiences at South Works with different types of wearing plates. Early attempts at stock line protection, made by using large cast-iron segments held against the fact of the brickwork by anchor bolts fastened to the shell were not encouraging. The life of these plates was found to be rather short, since the cast iron under the influence of the furnace gases would absorb carbon, which caused swelling and disintegration. This attempt was followed by the installation of segmental steel plates similar in design to the former.

These plates gave good service as long as the top temperatures remained uniformly low. However, when used under conditions where higher top heats could not be avoided the steel plates warped badly, some of them became unfastened, and a considerable disarrangement of the brick work at the stock line was the result. Inferior furnace practice bore ample proof to the fact that no stock line protection whatever was superior to protective devices which would not retain their original shape, and not absolutely secured in their position. I should like to illustrate this point by presenting a few figures concerning the performance of one of the South Chicago furnaces during the year 1913.

Effect of Stock-Line Protection

(Gary by-product coke used)

Year 1913 Month:	Average daily tonnage	Coke per ton of iron	Tons made on lining 533,800
Jan.	469.1	2408	.....
Feb.	477.3	2317	.....
Mar.	490.0	2237	.....
Apr.	495.9	2257	.....
May	490.7	2179	.....
June	411.1	2209	639,823
Furnace banked June 26. Resumed operation July 2.			
July	407.5	2365	.....
Aug.	495.9	2006	.....
Sep.	522.5	1890	.....
Oct.	514.0	1964	.....
Nov.	528.0	1937	.....
Dec.	500.3	1932	730,313

Results of Rebuilding Stock Line

This furnace was equipped at the stock line with cast-steel wearing plates of the type mentioned, and, as shown in the accompanying table performed rather poorly during the forepart of the year. On June 26, the large bell became detached from the bell rod on account of a defective casting. During the ensuing repairs what was left of the stock line protection was removed and the brick lining of the throat was repaired, thereby re-establishing the original stock line dimensions. Outside of these stock-line repairs no changes were made, so that the remarkable improvement of practice as experienced during the following months is clearly and exclusively attributable to the rebuilding of the stock line. As a result of our experiences with wearing plates made of steel as well as of gray cast iron we abandoned the use of both of these materials, and since the year 1912 have installed segmental wearing plates embedded in the brick work and made of a low-silicon, high-sulphur cast iron. This material containing a rather large part of its total carbon in the combined form is on account of its hardness well suited to resist abrasion, and at the same time is not subject to disintegration under the influence of the furnace gases. The results obtained with this type of stock line protection have been most gratifying in every respect.

Referring to Mr. West's report on the changes of opinion and practice regarding the thickness of lining to be installed in the inwall section of the furnace, a few notes on the recent performance of the thin-lined furnaces at South Chicago may be of interest. One should bear in mind that these linings were originally installed in competition with such of 50 to 60 inches in thickness; also that while the latter were built with a large amount of experience on hand, the early furnace campaigns on thin linings had to suffer for many mistakes in detail of design. This was especially true concerning the chief difficulty experienced in the beginning, that of water leakage, which brought a number of furnace campaigns on thin linings to a premature end. It can be safely said that trouble of this nature has been definitely overcome, and recent performances of thin linings have fully proved their superiority over the old 60-inch inwall. For example No. 8 furnace at South Chicago during its present campaign had produced on a 13½-inch lining up to May 1 of this year a total of 559,173 tons at the rate of

544.4 tons daily and with a coke consumption of 1901 pounds per ton. This record compares favorably with that of the other furnaces of the South Chicago group for the same period of time. The same may be said of No. 5 furnace at South Chicago, which to May 1 of this year produced on a 13½-inch lining 323,260 tons and is expected to more than equal the record as established now by our No. 8 furnace.

The lines of Nos. 5 and 8 furnaces are shown in the accompanying diagram.

Water Cooling Above Mantle

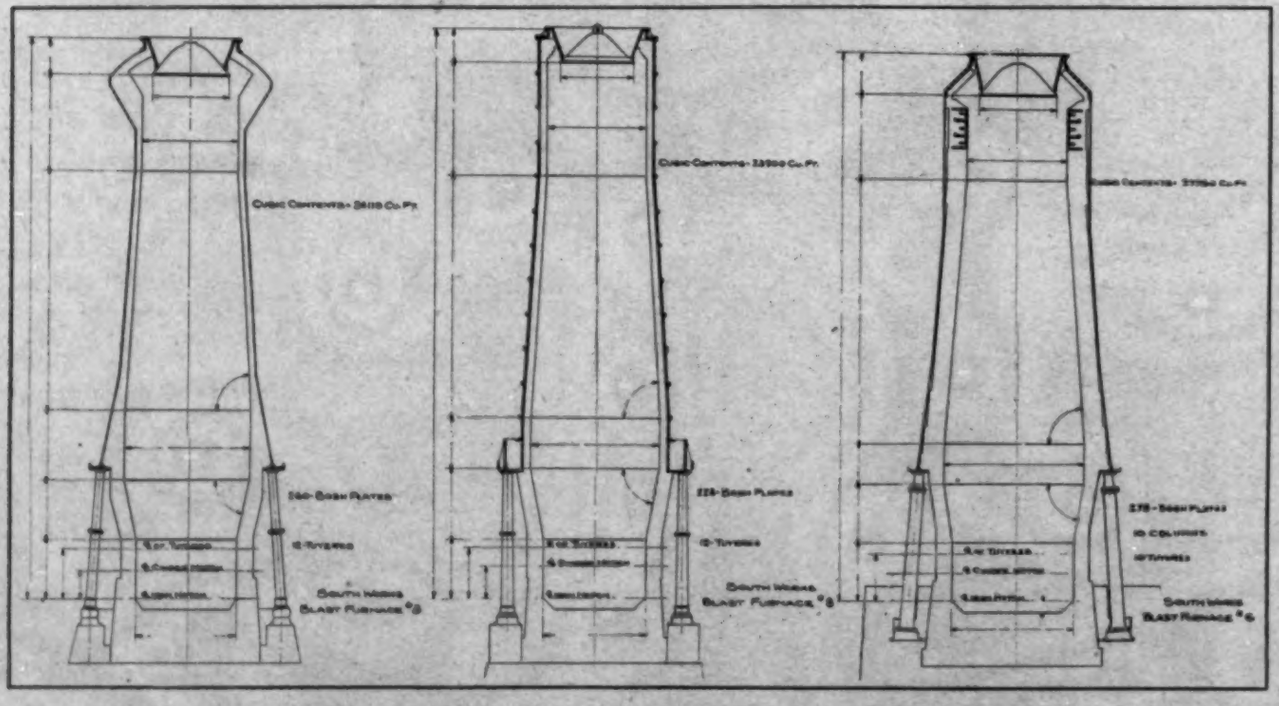
From the performance of these furnaces the conclusion must be drawn that wherever it is deemed advisable to resort to water cooling above the mantle it is far to be preferred to apply this water uniformly to the outside of the furnace shell in connection with a comparatively thin lining, rather than to install water-cooled boxes or plates inside of the lining and shell, where they are inaccessible, liable to cause trouble through leakage which cannot be readily discovered, and yet unable to exert a cooling effect of the required uniformity so as not to cause irregular wearing of the brick lining.

However, modern American practice on high-blast heats has well established the fact that at least on standard grades of iron, water cooling above the mantle is not required. The zone of the highest temperature being confined to its proper dimension, that is to the bosh immediately above the tuyere level, no undue wear of the brickwork above the mantle takes place.

Referring to Mr. West's remarks concerning the enlargement of the hearth as inaugurated at the South Chicago furnaces, I desire to emphasize that this development was undertaken not in order to enlarge the furnace and thereby increase its productive capacity, but for the purpose of steepening and lowering the bosh with the object of reducing the impeding action offered by the bosh to the uniform descent of the stock, and thus achieving a greater uniformity in the working of the furnace with ensuing better quality of product and improved furnace efficiency. To what extent these expectations were realized may be judged from the performance of the South Chicago furnaces during the past three years, and it can safely be stated that the increased production gained at these furnaces during this period was solely the result of smoother furnace operation. Mr. West has mentioned that larger hearths and steeper boshes have enabled operators to maintain reasonable furnace practice even under most adverse conditions of raw materials and operation. We have had the opportunity to fully realize this at the South Chicago furnaces during the past year. I am convinced that it is only through the correct development of our furnace lines, the large-hearth dimensions and steep boshes, that we have been able to operate our furnaces during the past 18 months of most extraordinary irregularities, with continuous coke changes and frequent banking, without getting into serious trouble and without grave and permanent damage to furnace linings and equipment.

Hearth Size Increased

These conditions have not as yet permitted the full realization of the advantages in furnace practice which we expect from the most recent development of furnace lines at South Works and which has led to a still further increase of the size of the hearth. Having practically eliminated the bosh as a restricting influence to the stock movement the next logical step was to increase the batter of the inwall to ease the descent of the charges. With a given stock-line dimension this required an increase of the bosh diameter and in turn, maintaining the proven angle and height of bosh, brought about a further increase of the hearth so that the 20-foot line of the hearth diameter has finally been crossed.



LINES OF NOS. 5, 6 AND 8 BLAST FURNACES AT SOUTH WORKS, ILLINOIS STEEL CO., CHICAGO.
NOS. 5 AND 8 FURNACES ARE THIN LINED

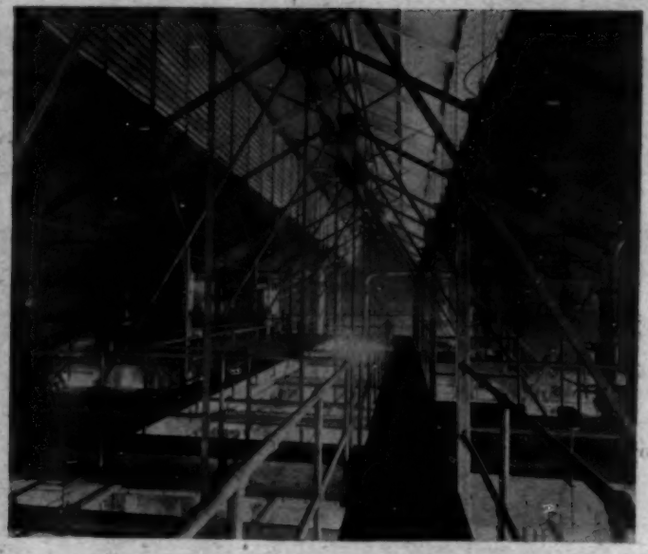
Modern Puddling Mill Makes Debut

New Plant at Ulster Iron Works, Dover, N. J., Most Important Development in Merchant Bar Iron Industry in East in Recent Years—Up-to-Date Methods Applied to an Old Process

EXPANSION of the merchant bar iron industry in the eastern states has proceeded very slowly during the past few decades. Few of the plants devoted to this product reflect any marked improvements or extensions. Most of them have been in existence for many years and the methods and the equipment in use have not been affected noticeably by the passing of time. In view of this situation, the erection of a new and modern puddling mill by the Ulster Iron Works, Dover, N. J., looms up as the most important recent development in the progress of this industry in the East. The company will have a capacity of from 80 to 100 tons in 24 hours, or more than double its best previous output when the new mill is in operation. Its old plant has 11 double puddling furnaces. The new plant now contains 11 complete double puddling furnaces and space is provided for a second group of 11 furnaces for which the brick and other materials now are at hand. Ultimately the puddling capacity of the entire works will be 125 to 150 tons daily.

Excepting that they are of unusually substantial construction, these furnaces are of the type which for many years has been regarded as standard. They burn bituminous coal under forced draft, the castings entering into their construction are water or air cooled, and each furnace is surmounted by a waste heat boiler for generating steam required in the operation of the rolls and pumps, and for the generation of electric current. The building in which the new furnaces are quartered is 390 x 77 feet, with a 60 x 93-foot bay where the puddle bars are delivered from the rolling mill. The building is of steel construction with corrugated roof and sides. It is of the monitor type to provide adequate ventilation. In fact, consideration for comfortable working conditions for the men was one of the dominating factors determining the design of the new plant. The puddling furnaces are located close to the sides of the building, which are open in hot weather and the rolling of the hot iron is done away from the vicinity of the puddling furnace standings. For rolling the puddle balls into blooms there is a squeezer of the rotary type. In addition an alligator squeezer

NEW PUDDLING PLANT OF ULSTER IRON WORKS, DOVER, N. J. ARRANGEMENT OF PLANT IS SUCH AS TO PLACE PUDDLING FURNACES AT SIDES OF BUILDING, THUS LEAVING CENTER AVAILABLE FOR OVERHEAD TROLLEY SYSTEM FOR HANDLING PUDDLE BALLS



RAW MATERIAL IS BROUGHT INTO THE BUILDING BY MONORAIL, WHILE OUTSIDE IS A TRANSFER BRIDGE BY MEANS OF WHICH THE GRAB BUCKET CAN BE MOVED TO ANY PART OF THE MATERIAL YARD

ABOVE THE PUDDLING FURNACES ARE WASTE-HEAT BOILERS WHICH ARE REACHED BY MEANS OF AN OVERHEAD WALKWAY. MANY YEARS OF EXPERIENCE IN PUDDLING COMBINED TO PRODUCE THIS IDEAL PLANT

THE NEW BUILDING IS EQUIPPED WITH A ROTARY SQUEEZER, A JAW SQUEEZER AND AN 18-INCH, 3-HIGH, BAR MILL. AT THE RIGHT IS SHOWN ONE OF THE 11 DOUBLE PUDDLING FURNACES WHICH TOGETHER HAVE A CAPACITY FOR PRODUCING 40 TO 50 TONS OF PUDDLE BALLS EVERY 24 HOURS

has been installed for upsetting the blooms. The puddle bars are rolled in an 18-inch, 3-high, puddle train. This is as far as the process goes at the new plant. For further refining and rolling the puddle bars are transferred to the company's old plant. The equipment at the old plant includes a 20-inch bar mill, one 16-inch and one 12-inch Belgian mills, one 10-inch guide mill and an 18-inch puddle train.

Considerable reduction in the cost of production has been achieved at the new plant through the installation of labor saving devices. For delivering the puddle balls to the squeezer, the old-fashioned hand car has been replaced by monorail system with branches to all the furnaces. Blooms are transferred automatically from the squeezer to the puddle train by a conveyor. Coal, iron ore, pig iron and other materials are brought into the building and deposited at the various standings by two overhead conveyors. These also remove ashes and cinder from the building. The conveyors run on overhead tracks along the sides of the buildings, one being equipped with a grab bucket and the other with two hooks for handling buckets. These conveyors may be run out of the building onto a crane bridge and in turn onto a traverse which commands the coal, ore and pig iron storage yard. For unloading pig iron from incoming cars a magnet crane is provided.

The products of the Ulster Iron Works are locomotive stayboit and engine bolt iron. Only pig iron of the gray forge grade is used and no scrap whatever is charged into the puddling furnaces. The history of the Ulster Iron Works dates back to 1827, when the original plant of the company was established at Saugerties, Ulster county, New York. In 1883 the business was moved to the present location at Dover, N. J.

Old Process Still Employed

The ancient and the modern are strangely commingled in this new plant of the Ulster Iron Works. While here are to be found all the devices which ingenuity may suggest for the saving of time and labor, the actual process of making the iron is the same as that discovered in 1830 by Joseph Hall, and much of the equipment conforms to old standards. Practically the only change developed in nearly a century has been to increase the size of the furnace, the double puddling furnace being the modern adaptation of the old pig boiling process.

The furnace is lined externally with plates bound together with rods, has a stoke hole for firing and a door midway of the hearth. Heavy cast iron plates are used for the bottom of the furnace, the plates resting on an iron frame, permitting the free circulation of air underneath. Hollow cast-iron chills surround the oblong working hearth, air or water circulating through the chills and cooling the lining of the hearth. The sides of the hearth are faced with oxide of iron.

After the oxides are charged into the furnace and melted a uniform condition is brought about by agitation accomplished by rabbling and the natural ebullition of the bath. The pig iron is then drawn into spheres and subjected to heavy pressure in the squeezer, most of the oxides being expelled. The cross-section of the squeezed bloom is about 33 square inches but is reduced by rolling to 3¾ square inches in a puddle bar ⅝ x 6 inches.

The officers of the Ulster Iron Works are: President, C. R. Mulligan; vice president, John Mulligan; secretary and treasurer, J. D. B. Vreeland. The company's output is marketed by Joseph T. Ryerson & Son. The new plant in its entirety was laid out in accordance with ideas advanced by John Mulligan, working in conjunction with the T. W. Price Engineering Co., Woolworth building, New York City. The latter interest had charge of designing a large portion of the work, and also the superintendence of construction, placing of contracts, etc.

Book Review

Bookkeeping and Cost Accounting for Factories, by William Kent; cloth; 261 pages, 8x 11 inches; published by John Wiley & Sons, Inc., and furnished by THE IRON TRADE REVIEW for $4 net.

Many books have been written on the subject of cost accounting, but few are as comprehensive as "Bookkeeping and Cost Accounting for Factories". The author has written the book with the idea of giving to the student a systematic treatise on cost accounting, beginning with the elementary principles of double entry bookkeeping and leading him through factory accounting to cost accounting, giving him not only the fundamental theory in accordance with the views of the ablest modern accountants, but also warning him against the time-worn fallacies of the older school.

The first three chapters treat of elementary principles, titles and definitions of accounts, and the evolution from the ordinary journal and ledger systems into the labor-saving methods of separate purchase and sales ledgers, column cash books and journals, up to the monthly column ledger, and finally to the combined journal-ledger, by means of which the troublesome trial balance is dispensed with. The federal trade commission's system of accounts for retail merchants is then discussed, and it is shown how it can be improved by the use of the journal-ledger.

Factory accounting is then shown to be distinct from commercial bookkeeping, and the first principle stated is that in the general books of a manufacturing concern the operations of the factory should be treated as if they were those of a separate business, belonging to outside parties. Factory accounting is then explained in detail.

Cost accounting is taken up next, and the author divorces the accounting department from the cost department, having the latter determine costs by an independent method.

Other chapters treat of depreciation, inventory valuation, appraisals, systems and red tape, daily and monthly records, charting of statistics, cost of idleness, problems and difficulties, uses of costs, various opinions about costs, classifications, symbols, bookkeeping by machinery. These, with the introductory chapters take up about one-half of the book. The remainder is devoted to practical cost accounting in various industries, including a blast furnace, a steel works, foundries, a hardware factory, a machine shop, a bakery, a textile mill, a woodworking shop, cost and price of coal, power plants and printing shops. The final chapter contains examples of reports to stockholders of large corporations, numerous blank forms in addition to those given in other chapters, and a list of books on cost accounting and on sceintific management. Throughout, the book reflects Dr. Kent's unusual ability and long experience in the engineering and industrial management fields.

Moving a mass of structural steel, 1140 feet long and weighing 13,000,000 ppunds in a period of 25 minutes was a feat recently performed by workmen of the American Bridge Co., at the Bessemer & Lake Erie bridge over the Allegheny river at Hulton, Pa. Preparations for moving the structure took two hours and 35 minutes. The bridge was in place 25 minutes later. In two more hours, the rails had been laid and the bridge opened for traffic.

Fixing Responsibility for Accidents

How Courts Determine "Proximate Cause," the Root of Liability for Personal Injuries, is of Special Importance to Manufacturers—Contributory Factors Also Explained

CHESLA C. SHERLOCK

IF employers have ever discussed their legal liability for accidents with lawyers, or have ever been in a court room when lawyers were discussing the matter before court and jury, they have heard the expression "proximate cause" used a great deal.

While it may appear to some to be merely a high-sounding legal phrase it means a great deal in arriving at the actual liability of one for accidental injuries and it is especially important to employers to know something about it. If they make an extended study of the subject they soon learn to know that proximate cause is the very root of liability for injuries. It expresses in a word the standing of the parties before the law. It is, beyond doubt, the most important thing to consider in negligence cases, and at once the most unsatisfactory and hardest to determine. One legal authority states: "Perhaps the most common definition of proximate cause is the act or omission which immediately causes or fails to prevent the injury, and without which the injury would not have been done."

In a certain case it was shown that an employe in stepping off an elevator slipped and sustained severe injuries. It was contended that the proximate cause of the injury was the negligence of the employer in failing to light the premises adequately so that the employe could see what he was doing. It was shown, however, that the employe had used the same elevator in the same manner three times a day for more than 10 months without injury. The court held that the insufficient lighting was not the proximate cause of the injury. So we come to the conclusion, and it is well supported at law, that the proximate cause need not be the sole contributing cause, but it must be an efficient cause of the injury, else the employer is not liable.

It is commonly said at law that if one is negligent that he should have foreseen the reasonable consequences of his negligence, and that one committing a wrongful act or who is guilty of negligence is deemed to be responsible for such consequences. If such consequence is logically the injury of an employe, then the employer will be liable. But all courts do not limit recovery to such a narrow basis. Many hold that the employer will be liable for negligence or wrongful act, whether their consequences could have been foreseen or not. In a Wisconsin case, the court said:

"Negligence is not the proximate cause of the accident unless under all the circumstances the accident might have been reasonably foreseen by a man of ordinary intelligence and prudence. It is not enough to prove that the accident is the natural consequence of the negligence. It is not, however, necessary that injury in the precise form in which it in fact happened should have been foreseen. It is enough that it now appears to have been a natural and probable consequence."

But in a Minnesota case we find the court taking this view: "A person guilty of negligence should be held responsible for all the consequences which a prudent and experienced person fully acquainted with all the circumstances which in fact existed, whether they could have been ascertained by reasonable diligence or not, would at the time of the negligent act have thought reasonably possible to have followed, if they had occurred to his mind."

The actual question of liability, then, resolves itself into a question of negligence or want of ordinary care and not one of proximate cause. True, there must be a proximate cause to every injury, but this proximate cause must be the negligence or want of ordinary care on the part of the employer to make him liable.

The responsibility of an employer for an injury to a workman which is claimed to have arisen out of negligence always hinges upon this point. The employer, it should be stated, is liable only for the natural and necessary causes arising out of negligence. Other causes often intervene, enlarging or distorting the probable consequences. If these intervening causes are sufficient to stand as the cause of the injury, then the law considers the negligence of the employer as of too remote an origin to justify a recovery.

A legal authority defines a remote cause as "one which has so far expended itself that its influence in producing the injury is too remote for the law's notice; or a cause which some independent force may merely take advantage of to accomplish something, not the natural or probable effect thereof."

It has been demonstrated again and again that it need not confine itself to a human agency. Any cause, whether animate or inanimate, accidental or intentional, may cause the interruption and thereby relieve the employer from liability. This is particularly noticeable in industrial employments where men are employed at machines, in foundries, mills and manufacturing establishments.

In a Minnesota case, the defendant employer had caused to be piled a large number of smoke stacks, boilers and other materials near a railroad track. A train caught one of the stacks and pushed it along the track to a stairway leading to a signal tower, careening it, and causing the plaintiff to jump from the tower, whereby he was injured. The action was brought against the employer for having the material piled in this fashion. On the employer's behalf it was urged that if it was negligent to pile the material there, it was negligent for the railroad company to operate its trains with knowledge of the location of the materials and consequent danger, and such negligence on the part of the latter, being an independent, efficient and wrongful cause, intervening between original act and the injury ultimately suffered, must be considered the proximate cause of the injury.

The court said that while the company was negligent in operating its trains without removing the obstructions still the negligence of the defendant in placing them there was the proximate cause of the injury, although it would not have occurred but for the succeeding negligence of the railroad company. It was simply a case of the concurrent negligence of two persons combined together for which the injured man could recover from the one guilty of the first wrong, notwithstanding that the succeeding negligence of the other united in producing the injury.

In cases where a workman attempts to repair machinery and is injured, an interesting proposition arises. If he receives his injury while so engaged

The author was formerly secretary of the Iowa Industrial commission.

many employers would suppose that the proximate cause of the injury was the need of the machine for repairs, but such is not the case. In Louisiana it was pointed out that the causes bringing about the break in the machinery are only the remote causes and judicially are not to be considered as causes.

In a Maryland case, a number of workmen were employed at machines. One of them was performing his work in a negligent manner and persisted in it so that he soon was endangering the lives of his fellow workmen. One of the other workmen, seeing that he was operating his machine in a negligent manner, attempted to stop him and was injured. It was held that the proximate cause of the injury was the negligence of the fellow servant

In Illinois it was pointed out that it was well established at law that if the injury is alleged to have arisen from the breach of some particular duty, that no damages can be obtained from the employer unless it be shown that the proximate cause of the injury was the particular negligence complained of. For instance, if it is claimed that the employer has failed to furnish a safe place for the workmen to work, such negligence will not establish the employer's liability unless it be shown that it was the direct, proximate cause of the workman's injury.

When Workman Cannot Recover

The same is true of all the other negligent charges so often lodged against employers; namely, failure to furnish safe tools and appliances, failure to instruct and warn, failure to formulate rules and instructions, etc. Unless the breach of the particular duty caused the injury, it is not the proximate cause thereof.

The same is true of statutory breach. The mere breach of a statute will not sustain a recovery unless it be the proximate cause of the injury. If the proximate cause of the injury was the contributory negligence of the workman himself, then he cannot recover from the employer. This is likewise true in the case of negligence of fellow servants and those who do not stand in a representative capacity of the employer.

The subject is of vast importance for it reaches to the very essence of personal injury cases and the liability of the employer so far as they concern injured workmen.

Develops Steel Rail for Hard Service

A STEEL rail having an inner section of fine granular pearlite was recently patented by Roy A. Lewis, William R. Shimer and William J. Thomas, a section of which is shown in the accompanying illustration. It is said that rails made by this process have great tensile strength and a high elastic limit.

The process of making these rails is quite simple, the desired results being obtained through heat treatment. After the rail comes from the finishing rolls and the hot saw, it is cooled by an air blast to a temperature below the critical point. Next it is reheated to a temperature ranging between 1400 and 1500 degrees Fahr. Care is exercised to see that the rail is heated to a uniform temperature. Upon removal from the reheating furnace, the rail is quickly quenched in an oil bath. The object of this is to preserve, as much as possible, the solid solution of iron and carbon. Next the rail is heated to above the coalescence point. After this it is cooled to between 500 and 1000 degrees Fahr. and placed in an annealing furnace where it is heated to between 1000 and 1250 degrees Fahr. It is kept in the annealing furnace until it is of a uniform temperature. Then it is withdrawn and allowed to cool.

The completed rail is said to have a microstructure of fine, granular pearlite and to be practically free from ferrite. The free ferrite found in the rail is uniformly disseminated, it is pointed out. The finished product contains between 0.60 and 0.90 per cent carbon, 0.50 and 1 per cent manganese with sulphur, silicon and phosphorus in the amounts generally found in steel rails. Rails made by this process are said to have a tensile strength of approximately between 115,000 and 155,000 pounds per square inch with an elastic limit approximately between 70,000 and 95,000 pounds per square inch. The elongation is between 15 and 25 per cent, the reduction in area between 30 and 55 per cent and the hardness, by the Brinell test, approximately between 225 and 325.

The following results are said to have been found in rails made by this process and containing 0.61 per cent carbon, 0.68 per cent manganese with silicon sulphur and phosphorus in the percentages usually found in steel rails:

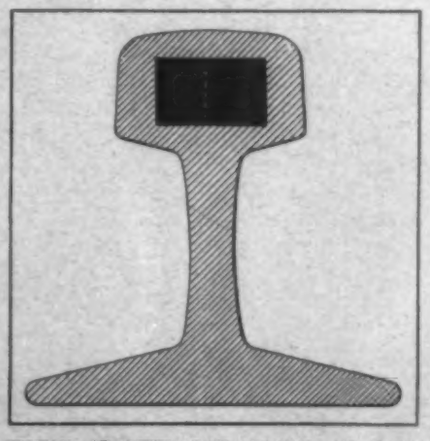
	Treated
Tensile strength per sq. in., lb	130,000
Elastic limit per sq. in., lb	80,000
Elongation, per cent	17.5
Reduction in area, per cent	43.3
Brinell hardness No	245

Rails having 0.71 per cent carbon, 0.76 per cent manganese with silicon, sulphur and phosphorus in the usual percentages gave the following results:

	Treated
Tensile strength, per sq. in., lb	138,000
Elastic limit per sq. in., lb	88,000
Elongation, per cent	19.5
Reduction in area, per cent	48.8
Brinell hardness No	260

A specimen of an 80-pound rail having 0.61 per cent carbon and 0.68 per cent manganese was supported on anvils spaced 3 feet apart and struck with a 2000-pound weight falling from a height of 18 feet. This rail withstood six blows before it broke and the total deflection was found to be 8 inches with a total elongation of 1.77 inches. The elongation was in 6 inches taken along the exterior of the deflected portion of the rail. The fracture was found to be fine and fibrous.

The rail having 0.71 per cent carbon and 0.76 per cent manganese was tested in the same manner and withstood seven blows without breaking. Further blows were impossible on account of the limitation of the testing apparatus. The total deflection was 11 inches with an elongation of 1.06 inches. The elongation was taken from the same place in both tests. This rail was afterward broken to inspect the fracture which was found to be fine and fibrous.



SECTION OF STEEL RAIL HAVING AN INNER CORE OF FINE GRANULAR PEARLITE

The vast mineral deposits of Finland, which have been known but which have never been exploited, are to be thoroughly studied by a company formed at Helsingfors for that purpose, according to *Commerce Reports*.

Democratizing French Engineering

Demand for Modern Methods in Educating and Training Engineers and Elimination of Bureaucratic System Demanded as Result of American Experts' Achievements—Delegation's Visit Arouses Country

BY FRANCIS MILTOUN

(Paris Correspondent of The Iron Trade Review)

MUTUAL appreciation of American and French engineering skill is expected to be greatly advanced by the recent visit to France of a delegation of American engineers. The main purpose of this visit was to help in solving some of this country's greatest problems and show the French what Americans have accomplished in engineering. Maj. James F. Case, of New York, member of the American Society of Engineers, was chairman of the delegation. The first meetings were presided over by Monsieur Millerand, former minister of war. Regional meetings and conferences were held at the largest ports, railway terminals and industrial and mining centers.

The members of the delegation were: Prof. George P. Swain, of the Massachusetts Institute of Technology; George W. Fuller, of New York; E. Gybbon Spillsbury, of New York, former president of the American Institute of Mining Engineers; George W. Tillson, of Chicago, road expert; Charles T. Mayne, of Boston, president of the Society of Mechanical Engineers; A. M. Hunt, member of the council of national defense and hydro-electric expert; Nelson P. Lewis, New York, roads specialist and city planning expert; L. B. Stillwell, president of the American Institute of Consulting Engineers.

American ways are not French ways, and America should remember that this in itself is no handicap. Many blunders have been made by well-meaning Americans, and they have thought the French ungrateful in not adopting them, lock, stock and barrel. The visit of the American delegation of engineering experts should put things on a different plane and help considerably toward Franco-American amity.

Praise for American Engineers

Monsieur René Sudre, a French technical journalist, recently pronounced a striking eulogy of the American metallurgic and civil engineer. He admitted frankly and gladly that Americans have the lead. He says: "French equipment is miserable, French ports and docks are inadequate to the economic need of the country, and the inland waterways of France, canals and *soidisant* navigable rivers, are only fit to inspire poets." This is the pessimistic view, but the war has demonstrated that the economic *outillage* of France is not at all in keeping with the greatness of the nation.

Mines have remained unexploited, and hydraulic power has been allowed to run to waste; only French forests among the country's natural resources, have been intelligently worked to the limit, and even the enterprises for producing paper pulp have remained behind those of Italy, while that country's development of water power is far ahead of France's.

There are French engineers of great ability, endowed with mathematical and scientific competence rather above than below American standards. On the other hand, they lack focus with the insistent need of the hour. This handicap may not be due to their instruction, their personality or their experience, but rather to their conformity to tradition, which surrounds all initiative in France with a fog of routine and bureaucracy. The contact of the French with the American war engineers in France who have built great docks and piers, warehouses, bridges, railway lines and sewage systems, not forgetting the world's biggest ice plant at Givres and a 20,000-bed hospital groups at Mesvres and Alleray, have given them "to think," as the French express it.

All this is having a penetrating effect on the French engineers who still complain that the same opportunities were never granted them. In France, they favor theory above practice, or rather they consider the engineer as a theorician; in the United States it is practical work, experience and achievement that count. The French now admit that the ideal engineer would be one who possessed the science of the Frenchman and the facility and adaptability of the American.

Metallurgical and electrical engineering can not be pursued to its desirable end without mathematics, but "such a reversal of pedagogic ideas such as we see in America," says Monsieur Sudre, "would scandalize the *mandarins* of our French hierarchy, who still claim for the engineer the diplomas and brevets of a quasi-classical education."

Engineering education in America is acquired through a course at the scientific or technical school of some university; in France it is acquired in one of the purely specialist schools, such as the Ecole des Mines, the Arts et Metiers or the Ponts et Chausées, the like of which are unknown in America. At 21 the young American may be placed in some important post, whereas in France he is still in some drawing office or receiving or shipping room or has become a public functionary without the least practical outdoor or factory experience. Beside this we have the French system under which the young engineer dreams only of entering the Polytechnique, or at least the Arts et Metiers as a *pis aller*, in default of being able to rise to the former.

The Polytechnique is purely a military school, the Arts et Metiers secular and civilian. The attraction and glamor of the former has worked perniciously against the latter. Whether this will continue remains to be seen. It's the old story of the line and the staff, the West Pointer against the training camp officer, at least not far different, so far as psychological relations go. To start his engineering education, the ambitious young Frenchman must have won laurels elsewhere as the result of a grind of one, two or three years of analytic geometry and other forms of mental gymnastics. The intensive cramming works a sorry result and empties many a cranium rather than fills it.

At 26 or 27, a Frenchman may be ready to leave the Ecole des Mines or the Ponts et Chausées for his debut in organized industry with hardly a notion as to what the interior of a factory or the entrance to a mine shaft looks like. For five years his American brother has been producing, advancing and earning a large amount compared to French standards.

Association Urges Reforms

The Société des Ingénieurs Civils de France has advocated during the past four years reform for French engineering education. After numerous and lengthy debates among those officials most *au courant* a report has just been issued bearing the signature of Monsieur Guillet, the secretary, recommending the revision of the program of secondary education and the classes of

special mathematics, the reform of instruction in the big schools, tending toward a more practical and technical instruction, fewer lessons comprising abstruse theories, fewer lectures composed of big words, with an increased amount of professorial counsel from those who are actually practitioners rather than mere class lecturers, and above all more of an intimate contact between the students and the actual workings of modern industries.

The association demands, in addition, the creation of diverse centers of superior post-graduate instruction on the model of the one organization in France already working along these lines, the Ecole Superieur de l'Electricité, also the creation of industrial and scientific courses in practical industrialism in conjunction with various subsidized factories, permitting engineering students to benefit from the experiences of their predecessors. It also suggests that the nation should recruit its future engineers by means of examinations, rather than by influence. This means, too, that government jobs in France must be paid for on a more liberal scale. All this is to be worked out on a program which shall correspond to the end in view rather than demanding a specialized knowledge along many lines which are not even co-related and which the possessor may never have a chance to put into practical use.

Instruction, therefore, is to be adapted to present necessities, suppressing mathematic dilettantism and the cramming of the memory with despotic theories. Thus will France come into line with the very obvious program of progress which has been made by the sister nations of France.

"The American engineer and his methods alone can provoke the movement of necessary opinion to this end," said M. Sudre.

Surface Grinder for Tool Room Work

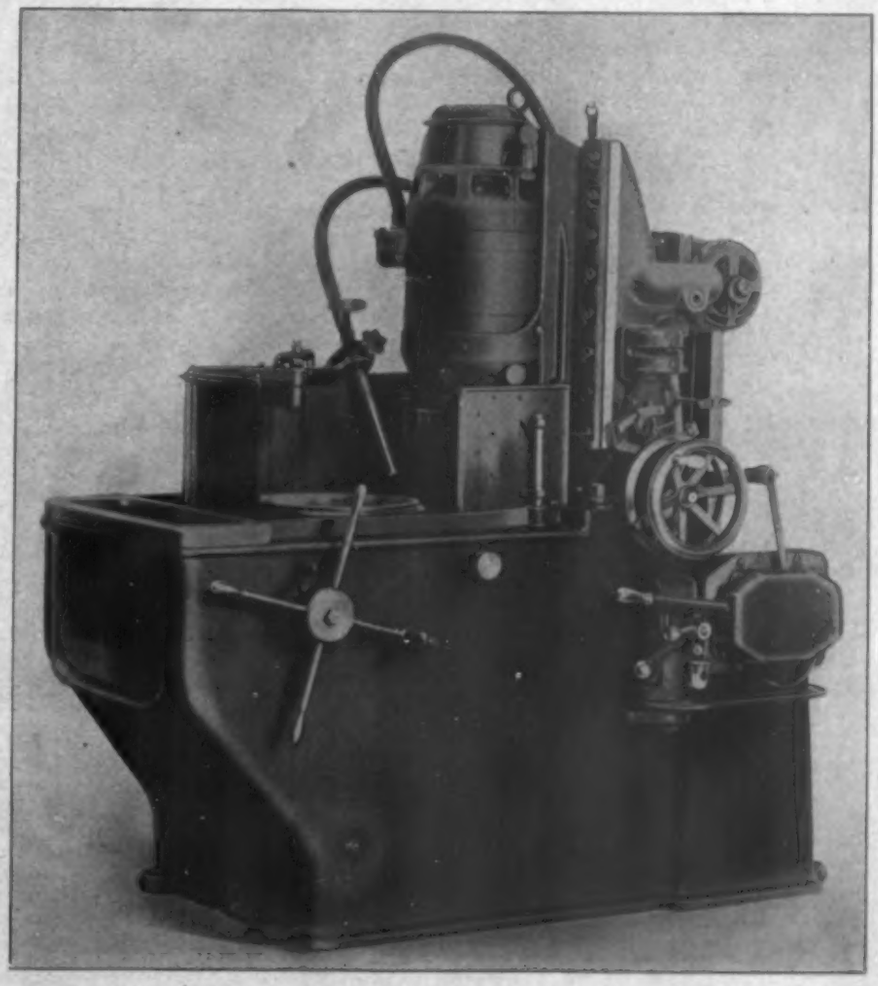
FOR surfacing comparatively small accurate parts used in toolroom practice, such as dies, punch faces, jig and fixture bases, etc., the Blanchard Machine Co., Cambridge, Mass., recently developed the tool shown in the accompanying illustration. It is said that this machine is well adapted for surfacing parts directly from rough forgings or castings preliminary to laying out operations.

The bed of the machine is of box form, cast in one piece, and is heavily webbed to increase its stiffness. The column and wheel head are exceptionally heavy, giving the rigid support to the wheel which is essential both for accurate work and for the economical use of soft, free cutting wheels. The column has a 3-point support on the base with convenient means for aligning it to bring the spindle square with the table. The spindle is made from a 0.40 to 0.50 per cent carbon steel forging. It is 2⅜ inches in diameter, mounted on two large ball bearings taking both thrust and radial load.

The machine is made in two types, adapted for direct motor or belt drive. The former, which is shown in the accompanying illustration, has a 10-horsepower induction motor, running at 1740 revolutions per minute, built into the wheel head. A smaller motor on the rear of the machine drives the chuck and water pump. The two motors are wired to start and stop together. The control equipment used with the direct motor-drive type comprises a hand automatic starter with no voltage release and overhead relays.

The belt driven machine is similar in general design. This type has an 8 2/8-inch diameter drum pulley on the spindle. This pulley and the 4-inch double belt which rotates it are entirely enclosed. Two ball bearing guide pulleys are mounted on universal brackets on the rear of the column, and these pulleys and brackets suit either the floor motor, overhead motor, or countershaft type of belt drive.

The chuck is a steel forging and has no joints in the working face. Owing to the absence of joints, the chuck is waterproof. The face of the chuck is of steel and brass to insure hardness and durability. The chuck rotates on a flat bearing of large diameter and is centered by a central spindle. The chuck bearings, driving mechanism, and electrical connections are all enclosed in a casting which slides horizontally on the base, and is operated by a rack and pinion. This motion is not used for grinding



SELF-CONTAINED VERTICAL SPINDLE SURFACE GRINDER FOR TOOLROOM AND OTHER LIGHT WORK

but allows the bringing of the chuck entirely clear of the wheel for placing and removing work. The chuck is driven from a horizontal shaft in the rear of the machine connecting the chuck speed gear box and water pump. This shaft in turn is driven by belt from the auxiliary motor in the case of the direct motor-drive type or from one of the guide pulleys for the spindle belt in the belted types. The chuck speed gear box provides four geared speeds, any one of which is instantly available but so arranged that it is impossible to engage more than one speed at a time. Hand and power feeds are provided, the latter adjustable from 0.0002 to 0.004-inch per revolution of the chuck.

A submerged pump of ample size supplies water through separate pipes to the inside of the wheel. The work can thus be flooded with water while at the same time the water inside the wheel is forced by centrifugal action under and through the wheel face. This absorbs the heat as fast as it is generated. The base is used for the tank, which catches the water as it leaves the chuck. The abrasive and metal are deposited in this tank. A slanting end to the base, with a large opening closed by a swinging steel door, makes cleaning out an easy operation. Heavy enameled steel guards surround the chuck and wheel when grinding, and effectually prevent the escape of water or dirt. The accompanying illustration shows the machine with these guards closed. The guards open and close automatically.

The control of the machine is centralized, all control handles being grouped conveniently for the operator. All important bearings and gears are lubricated by oil baths. The reservoirs contain sufficient oil to lubricate for a week to 10 days without replenishing, and are fitted with gages which show the oil levels and indicate when refilling is needed.

Find Wolframite Mines on Ex-Czar's Estate

During the years 1911-12 valuable wolframite ore deposits were found in the Nertchinsk mining district in the province of Transbaikalia, Asiatic Russia, which despite their high value have been but little worked. The ore has been classified, by a exploring party, as quartz vein, and is found in veins passing through granite rocks. The deposits are found all through the district.

In the Bakuka mountain district the ore beds are found in a wild marshy forest on top of the mountain. Little work has been done here and at present there are only 35 excavations and three shafts, 25 to 30 feet deep. The ore found here is in quartz veins averaging 15 inches in thickness. In some places a lateral vein of wolframite comes in contact with a gray, granular rock, consisting of quartz, light mica and feldspar, with small grains of gray pyrite and black zincblende.

B. W. Malisheff, Russian mining engineer, in December, 1915, was sent to examine the beds in this district, and from samples obtained by him, it has been estimated there is a reserve of approximately 12,000 pounds of wolframite. These beds are on the former czar's lands, and were discovered by the inhabitants of the village of Kamkoy. In 1915 the mines were sequestered and before the revolution, despite the difficulties of transportation, the mining of wolfram here was estimated at 200 pounds monthly.

Book Tells of Company's Industrial Relations

An attractive and well illustrated booklet of 71 pages, in which the industrial relations of the American Cast Iron Pipe Co., Birmingham, Ala., and its employes are fully set forth, is being circulated. The booklet was published in response to a demand for more specific information concerning the activities and organizations fostered by this company for its employes.

Recreation activities, social activities, etc., all promoted by the company, are fully described. The medical ward and the workmen's homes, both for the colored and white employes, are illustrated. The pension system followed by this company aims to be an ideal one. It provides that when an employe has served the company for 20 years and has reached the age of 70, he shall be retired and pensioned. Any employe who has served the company 25 years and is 50 years old, may retire at his own request on a pension, or on the request of his employing officer, subject to the approval of the pension board.

Any employe who has been in the service of the company for 15 years or more, and has become totally incapacitated, may be retired and pensioned. Pensions granted under any of the stated conditions, in the discretion of the pension board, may be continued to dependent relatives for a period of one year following the death of the pensioner.

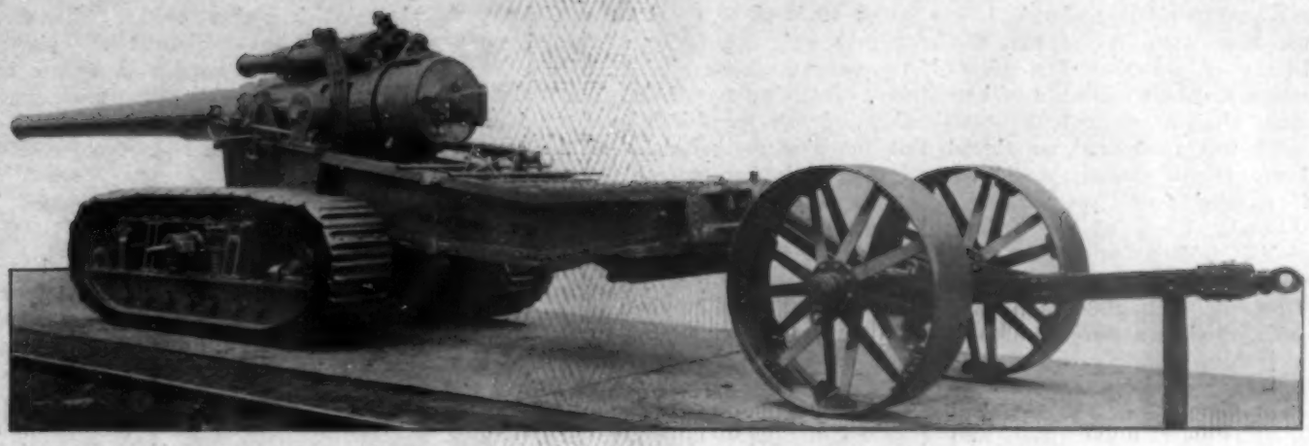
The company does not claim that the activities, etc., fostered by it for its employes, can be recommended as the perfection of industrial relations, but believes it has accomplished many good results, among them, the bringing about of a more sympathetic understanding of his obligations by the employer; and the creation of a more friendly attitude among the workmen toward their employer.

Will Re-establish Plant in Palestine

At an early date, one American manufacturer who has pioneered in the Orient plans to re-establish his business. Several years previous to the war, Harry Kaplan, 502 Swetland building, Cleveland, built a gray iron foundry and machine shop in Jaffa, the historic seaport of Jerusalem, in Palestine. This plant was known as the American-Palestine Iron Works. For a year after hostilities started, this plant was operated on a restricted basis, but at the end of that period the Turkish occupation forced Mr. Kaplan to become a refugee. Later, when the British took Jaffa, they found that the Turks had not destroyed the shop, and that it was available for necessary machine and ordnance repair and munition work. The plant now has been returned to its owners and Mr. Kaplan plans to leave shortly to make needed repairs and additions preparatory to resuming operations.

The plant was built primarily to furnish repairs for machinery which was imported. Slow communicatio facilities make it imperative that exporters who wish to enter this portion of the world's market shall be able to furnish replacement parts. Keeping a large stock of spare parts on hand is impractical, so that a universal metal-working shop must be supplied to care for this need.

Mr. Kaplan found American exporters slow to take advantage of the market which awaited them prior to the war. In some cases they availed themselves of established German agencies with the result that German made machinery was pushed at the expense of that made in America. British machinery manufacturers were more appreciative and previous to the war had established a foothold in the Orient. The factory at Jaffa, in addition to its general repair work engaged in the manufacture of presses and olive oil machinery, flour mills and pumps. It is the present intention of the management to buy additional machinery and equipment for both the foundry and machine shop and to arrange connections, if possible, with American exporters for the sale of pig iron and other raw materials.



CATERPILLAR MOUNTING FOR 7-INCH NAVAL GUN

Total weight of this gun and mount is 76,000 pounds, the gun alone weighing 30,000 pounds. The gun is here shown in traveling position, limbered and with breech block closed.

Heavy Naval Gun is Given Field Mounting

BY C. L. McCREA

ORDNANCE design calls into play an amount of study covering purely business and engineering problems which is not readily apparent to the layman. Yet nothing about the subject cannot be readily understood, for as in every other branch of construction, definite underlying principles direct design and when examined are found to vary but little from practice in the industries of peace. In this article will be described the design and construction of an entirely new type of field mount for a 7-inch heavy gun. An attempt will be made to show the reasons leading to the development of the material and how these reasons were evolved from a careful study of existing conditions.

Ships of the CONNECTICUT class when built were provided with a secondary battery of 7-inch, 45-caliber guns. They were mounted on pedestal mounts located between the main decks. When the war with Germany began, battleships of this class were assigned to convoy service; this meant they had to be ready to combat and defeat any submarine which might appear. For offensive purposes against the submarine a light, quick and hard-hitting gun is needed, therefore it was decided that the armament of these battleships could be improved by withdrawing the 7-inch guns and substituting 5-inch 51-caliber guns. Early in 1918 this change was approved and as the ships came in, 5-inch guns were substituted for the 7-inch guns, leaving the latter available for field mounting.

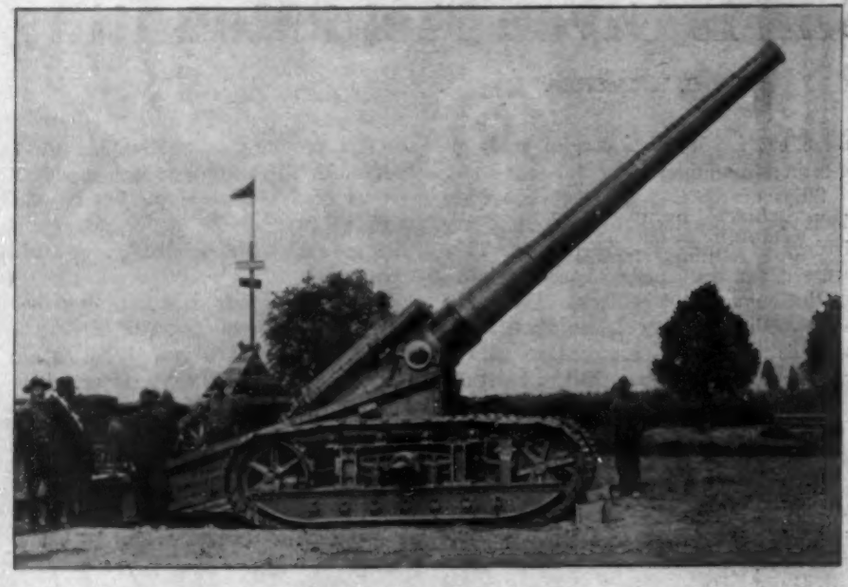
The 7-inch guns may be described as follows: The gun with breech mechanism weighs 28,700 pounds or about 14 tons. It is 45 calibers or about 26 feet long and gives a 153-pound shell a muzzle velocity of 2800 feet per second. At a range of 14,000 yards the shell has a remaining velocity of 1250 feet per second and will penetrate several inches of armor plate. It has a maximum range of 24,000 yards.

GUN UNLIMBERED AND PREPARED FOR ACTION

Breech block is shown open. Gun is elevated by means of handwheel engaging rack and pinion. Counter recoil system is enclosed in triple cylinders above gun. Caterpillar construction is similar to standard tractor design.

When considering the best way to use these guns in the war, the navy bureau of ordnance first planned to mount them on railway cars but while these designs were being completed, word was received from abroad that better use of this gun could be made if a suitable field mounting were developed. Work on the design of a mobile field mounting for the 7-inch gun was started immediately on March 15, 1918.

The designers were confronted with a problem which can be outlined as follows: A mobile mounting was desired for a 7-inch gun weighing 30,000 pounds, which would allow the gun to be transported as a unit and always ready for action. This gun was the heaviest and hardest hitting gun for which a mobile field mounting had ever been designed and the batteries were needed in France before the close of the year 1918.



MUZZLE ELEVATED TO GIVE RANGE
At a maximum elevation of 40 degrees the gun will hurl the projectile 24,000 yards

An examination of available field artillery designs showed that a wheeled mount for the 7-inch gun was not practicable. Assuming a 6-foot wheel with an arc of 25 degrees in contact with the ground, the total bearing surface to carry the load of 70,000 pounds, which includes the weight of the mount, would be about 6 square feet, giving a ground pressure of about 12,000 pounds per square foot or 88 pounds per square inch. This weight was prohibitive, for the carriage in moving over a road would probably ruin the roadbed, and further upon leaving the road and attempting to move over soft ground, would probably soon become hopelessly mired. Another doubtful point was whether or not a wheeled mount of the ordinary type would prove satisfactory on firing, as wheeled mounts have a tendency to roll back on firing, and the weight of a large wheeled mount makes accurate aiming difficult.

Believing a wheeled mount impractical for the 7-inch gun, the idea of utilizing the principles of the caterpillar belt for transporting the mount was suggested. It was proposed to make a steel frame with rollers carrying a link belt presenting a large flat surface to the ground. Sufficient strength could be given to the construction of the tractor belt so that it would withstand the stresses brought to bear, and preliminary calculations showed that a ground contact area of 28 square feet would be obtained, giving a bearing pressure of about 18 pounds per square inch.

Preliminary designs were submitted within a fortnight calling for a mount, the features of which were caterpillar belt wheels, a structural steel carriage and a gun slide equipped with hydraulic recoil and pneumatic counter recoil systems, allowing a recoil of 32 inches which reduced the trunnion pressure from 195,000 pounds, in the original navy mount, to 120,000 pounds. With immediate approval given by the chief of naval operations, the designs were pronounced complete on May 25 and were submitted to bidders. On June 18 the contract was awarded to the Baldwin Locomotive Works, Philadelphia, which agreed to undertake the manufacture and delivery of 20 mounts by Oct. 18, 1918. Material began to arrive at the Baldwin works within a few days.

The construction of the caterpillar wheels can best be shown by the accompanying illustrations. The wheel consists of an endless belt of cast-steel links, connected by hardened pins, each link carrying a corrugated forged steel plate which makes contact with the ground. When horizontal the plates overlap so that a continuous surface is presented. Detachable grousers are provided to prevent the tread from slipping when the mount encounters soft ground.

Roller Bearings Provided

The track links run over two large sprocket wheels and 11 truck and idler wheels as shown, the shafts on which these wheels turn being supported by a steel beam of special design. The sprocket wheels carry but little of the load except when the gun is descending a grade or when the brake is applied to the mount. For smooth running and reliability, roller bearings are provided in the truck and idler rollers. The ends of the bearing housings are closed by steel plates to prevent the entrance of dirt and sand when the caterpillar is hauled through mud, sand and soft earth.

A brake is provided to permit the control of the mount when descending hills and also to lock the caterpillar in position when the gun is set up for firing. The brake consists of a toggle joint operating on the rim of the sprocket wheel, the tension applied being controlled by an adjustable spring. This brake, although exceedingly simple, has been very satisfactory in controlling the heavy mount on steep grades and in checking any tendency to move on firing.

The axle is a steel forging 9 inches in diameter with a 5-inch central hole. It is supported in the wheel by a hub bracket, which in turn is carried by the structure of the girder on which the sprocket and truck wheels are mounted. This bracket is held by oscillating bearings and is spring supported so that the caterpillar may adjust itself to any unevenness in the road when the gun is in action. The springs are taken up by holding down screws when the gun is placed in firing position, in order that the mount may keep steady on the point of aim while firing.

Standard Shapes Used

The carriage which supports the gun is a structural steel framework built up of standard steel shapes. It consists essentially of two side girders cross braced at each end to form a single unit with a control well, into which the gun recoils. To permit accurate aim, a traversing gear is provided at the rear end of the gun carriage. A cast steel plate which rests on the ground is built into the structural work at the rear end of the trail and is held to the trail by clips. A worm shaft operated by ratchet wrenches shifts the trail with reference to the

plate and enables the gun to be trained accurately.

Recoil and counter recoil mechanisms are attached to the gun slide, operating through pistons attached to the yoke. Consisting of a simple hydraulic brake, the recoil system absorbs the energy of recoil through a distance of 32 inches by forcing a mixture of water and glycerine through small orifices of gradually decreasing diameter in the head of a piston operating in the cylinder.

The function of the counter recoil system is the return of the gun to the firing position. Finding it impossible to use the French design with all the parts in one cylinder, a new system had to be devised using the pneumatic principles but adapting it to American methods of manufacture. The result is shown in the accompanying illustration. The counter recoil system, located on top of the gun has been changed from a single cylinder to a combination of three cylinders connected at the lower end by a cast bronze head.

For the elevating gear, a simple combination of a handwheel, worm gear and rack and pinion has been found to work out satisfactory. Fitted to a bracket attached to the gun carriage is the sighting arrangement consisting of a panoramic sight of standard design.

The first two mounts, complete and ready to fire, were shipped from the Baldwin works on Sept. 26, just 100 days from the date of the contract, and arrived at Washington navy yard on Sept. 30. The bureau had provided as part of the battery equipment, 120-horsepower gasoline tractors for hauling the guns. With the tractors hitched to the mounts, the guns were pulled up and down hill, over rough ground and along hillsides. They proved themselves able to negotiate any ground over which the tractor itself was able to operate.

In the proof firing every expectation of the designers was fulfilled. The range of the gun, when firing at its maximum elevation of 40 degrees was 24,000 yards as predicted. The caterpillar tread, locked firmly in position by the brake, was almost as steady as a concrete foundation and the gun remained directed on the point of aim through continued firing. Dispatch of men and material for France could have started as early as Oct. 15, but due to a delay in selecting the port of debarkation, the shipment was held up until the armistice. Had these 7-inch tractor mounts been placed in service, they would have undoubtedly given results equal to that obtained from the navy's 14-inch railway batteries.

Advocates Chicago Base

President MacMurray of Western Association of Rolled Steel Consumers Sets Forth Claims for Pittsburgh Price Level

EFFORTS to obtain for Chicago an equal standing with Pittsburgh in the matter of rolled steel prices are gaining impetus and the Western Association of Rolled Steel Consumers is pushing vigorous efforts to that end. Recently the Purchasing Agents' Association of Chicago listened to a presentation of the subject by James E. Mac Murray, chairman of the association, who is president of the Acme Steel Goods Co., and adopted resolutions placing itself on record as favorable to a Chicago base.

Mr. Mac Murray said in part:

"The object for which the Western Association of Rolled Steel Consumers was formed was for the purpose of obtaining as low prices for steel products in Chicago as are made in Pittsburgh.

"Unfortunately for Chicago, about 40 years ago a little, short, square Scotchman began making steel in Pittsburgh, when he ought to have begun making steel in Chicago. So far as I am able to ascertain this is the sole reason for the present practice of making Pittsburgh the steel basing point for prices on steel products. At the present time the only argument for the maintenance of such a thing as pricing all steel products f.o.b. Pittsburgh is that it has heretofore been done.

"This argument was rudely shattered by the price fixing committee of the war industries board, who, when they first fixed their prices on steel products included the great industries—plates, shapes, sheets and bars, f.o.b. both Pittsburgh and Chicago. This ruling stood through the war until in July, 1918, when no one was looking, Chicago was omitted from the price table. The tonnage included in these four great divisions of the rolled steel product is equal to 53 per cent of the total product of rolled steel.

"The manufacture of rolled steel has not moved west with quite as great rapidity as the mining of ore. Between the years 1914-1917, Pennsylvania, which includes all of the Pittsburgh district and all of the great Bethlehem and eastern Pennsylvania district, increased its output of rolled steel 65 per cent. During the same three years the great iron producing state of Ohio increased its output of rolled steel products 75 per cent. Illinois, the first great western producer of rolled steel, increased its output 90 per cent and Indiana increased its output 100 per cent in three years. We believe these percentages will be kept up for industrial reasons, and if so, Chicago will be the center, not only on the production of iron ore, but of the finished product.

"In 1917, the total output of rolled steel and iron for the United States was 33,000,000 tons. Of this total output, Pennsylvania, which includes both the Pittsburgh district and all the Bethlehem and eastern Pennsylvania district produced 45 per cent. Ohio produced 18 per cent; Chicago district 20 per cent and the remaining 17 per cent was produced in Colorado, Alabama, New York and New England. This shows beyond question that Chicago is no small producer of finished and semifinished steel and that it is growing in its capacity and output at a very rapid rate; also that there are only two steel centers, viz.: Pennsylvania and Ohio, the Pittsburgh district producing 63 per cent and the Chicago district 20 per cent. The other 10 per cent is scattered in 10 states. Again the great central market is here in Chicago.

"The controlling feature in the steel industry, like every other, is that of cost. Judge Gary is probably the best informed man on the details of steel production in the United States, if not in the world. He made a speech before the chamber of commerce of the city of Duluth about June 20, 1918, in which he said:

" 'Why did the Steel Corp. build a plant on a sandy desert along the southern shores of Lake Michigan? Because of a love for Indiana? Oh, no, none of us have any particular interest in that state. It was purely a business proposition. We would much rather have spent the money expended in Gary right here in Duluth. Our friends are here. But the proposition would have been a failure from a business point of view. There, fuel was easily obtainable, as were other things which are necessary to the making of steel. There was a market. For the manufacture of pig iron Duluth is well situated, perhaps nearly as well as almost any other city. But Birmingham can manufacture pig iron $3.05 more cheaply per ton than can Duluth. As to steel products, Duluth is behind Gary by 38 per cent, Pittsburgh by 13 per cent.'

"Now to sum up, we expect to have Chicago re-established as a basing point for steel products for the following reasons: First, it is in the center of the great consuming territory; second, steel can be produced here as cheap, and it would seem considerably cheaper than in the Pittsburgh district, or anywhere else; third, it is the second largest producing district in the United States today, covering one-fifth of the total, and the only large producer of practically the entire line outside of the Pittsburgh district; fourth, we do not believe it is a fair practice for a steel company owning equally large and efficient mills in the Pittsburgh district and in the Chicago district, conceding that their costs of production are equal, to charge their customers who consume and manufacture in the Pittsburgh district $5.40 per ton less than they charge their consuming customers in the same lines of business in the Chicago district."

Employment Service Guesses Again

Cleveland Figure on Unemployment Takes Sudden Drop from 75,000 to 60,000 in Bureau's Report Following *The Iron Trade Review's* Expose of Padding—Estimate for Entire Country Now Lower

WASHINGTON, March 11.—Unusual significance is attached to the report of the employment service for the week ending March 8 showing that unemployment in the Cleveland district dropped from 75,000 for the week previous to 60,000. The report says that unemployment in the country dropped from 367,000 to 357,000. The difference in the Cleveland figures is 15,000, while for the whole country it is only 10,000, so that, barring the Cleveland district, the increased unemployment is represented as 5000.

The report is accepted as showing one of two things. It either denotes that, following the expose by THE IRON TRADE REVIEW, proving that the Cleveland figures were padded, the figures have been checked up and revised somewhat, or that there has been a falling off in unemployment, despite the alarming reports and forecasts of the employment service, which, incidentally, are in direct conflict with the attitude of other branches of the department of labor, as well as of other executive departments of the government.

In view of the fact that this report, as far as the Cleveland district is concerned, may actually indicate the absorption of some of the unemployed, this might be taken to show that industries in that district are becoming more active. While the report gives a better showing for the Cleveland district it still is contended that the figure of 60,000 unemployed is an overestimate, or another "guess," as the first was admitted to be.

Efforts to continue the service the remainder of the fiscal year, ending June 30, 1919, are being made by Director General J. B. Densmore. With this purpose in view he has conferred with his father-in-law, Secretary of Labor Wilson, and as a result is said to have assured employes of the service that he had every hope of obtaining funds with which to continue the bureau during the term mentioned. Unless he does secure these funds the bureau will have to cease operations at the end of the current month because of the failure of the passage by congress of the deficiency bill, appropriating $1,800,000, which would have permitted the service to continue through June. No chance exists for keeping the bureau in operation after the end of the present fiscal year because congress refused to appropriate the $10,000,000 necessary to continue it another year.

It is not known what funds Mr. Densmore expects to get to allow the service to operate through June of the present year. Apparently, Secretary Wilson has encouraged him to believe that finances will be secured for this purpose. Some of the money may be obtained from the President's war fund and some from the army and navy appropriations. This has been indicated by the fact that Col. Arthur Woods, of New York, has been named aide to Secretary of War Baker to place discharged soldiers in employment and it has been suggested that the employment service will be used extensively as the medium to attain this object.

Closing of the employment service will affect more than 550 men and women clerks employed in Washington. More than 5000 others are engaged in field work for the service throughout the country. Besides this, more than 780 established employment agencies in various parts of the country and 48 state headquarters will have to close their doors.

The war labor board of the department of labor also will be affected seriously by reason of its failure to get funds from congress. It was to have received an immediate appropriation of $366,000. The board's continuance now is a matter of a short time only. It employs about 100 men and women clerks in Washington.

The immigration branch of the department of labor will be affected only slightly, although a special appropriation for its disposal failed to pass. The executive division of the department of labor will not be affected. Aside from the loss of special appropriations for the census bureau, the lighthouse service, the coast and geodetic survey, and the bureau of fisheries, the department of commerce are not affected greatly.

Idleness Overdrawn, Says Reserve Board

WASHINGTON, March 11.—The federal reserve board's review of business and industrial conditions during February declares "there has probably thus far been over-anxiety and exaggeration with respect" to unemployment. Since the signing of the armistice, the report says, labor and employment conditions have been regarded in this country as constituting the fundamental problem of business readjustment and also the reintroduction of normal prices. The board's views on unemployment are gathered from reports of its agents in 12 federal reserve districts. Its criticism of the unemployment figures reflects on the weekly summaries of the United States employment service.

"From several of the manufacturing districts of the federal reserve system it is reported that labor conditions are far from satisfactory and that there is considerable unemployment, but it is also noted that the condition does not seem to have grown worse during February," says the review. "The process of absorbing unemployed labor is certainly proceeding with some degree of success. There has been a tendency to provide labor for a greater number of persons by eliminating overtime or establishing short time. The connection between wages, prices and costs is well recognized, and it is the view of manufacturers in general that wages should not go down faster than prices. Such revisions as are occurring, therefore, are frequently parallel, wages and prices receding in like measure. The opposition of labor to any reduction in wages is very general and extremely positive, but in some cases it is accompanied by the modifying statement that cuts in wages must not go further than changes in costs of living."

Gets French Contract

A contract has just been awarded to the Treadwell Engineering Co., Easton, Pa., for a 34-inch two-high reversing blooming mill, roller tables, manipulator and shears, complete, by the Automobile Berliet, Usines Venissieux, Rhone, France.

Contract Adjustment Rules Issued

Local Claims Boards Instructed in Procedure by Purchase, Storage and Traffic Division of War Department—Government Wants Adjustments Made Quickly—Mode of Settlement of Informal Contracts Provided

WASHINGTON, March 11.—Procedure to be followed in making adjustment of contracts is outlined in detail in supply circular No. 19, just issued by the purchase, storage and traffic division of the war department. The circular consists of a communication of the assistant secretary of war, as president of the war department claims boards. Topics covered concern payments under cost-plus contracts, payments under termination clauses, partial payments, subcontractors, interpretation of supply circular No. 111, and adjustment of contracts not properly executed in the manner prescribed by law, the latter being fully explained in supply circular No. 17.

The communication is addressed to the bureau and local claims boards engaged in the adjustment of contracts. The circular points out that at the recent conference in Washington of representatives of all claims boards engaged in the adjustment of contracts it was considered of vital interest to the public that the adjustment should proceed with expedition and that working capital tied up under the contracts should be returned to industry as speedily as possible. To this end it is directed that claims boards give careful attention to the matters set forth in the circular.

Dealing with the subject of payments under the cost-plus contracts, where work has been reduced by the direction of the department, it is stated that all proper items of expense to contractors, such as payment by them to subcontractors in settlement of subcontracts properly entered into by them under their contracts, can and should be vouchered as items of cost and their payment proceeded with as in the case of any other proper item of cost under such contracts without awaiting any settlement contract.

With regard to payments under termination clauses, the following instructions are given:

"Where a contract contains a termination clause which provides for the reduction of production and the method of payment to the contractor for disbursements made and work done in preparing to perform the uncompleted portion of such contracts, and the contractor is willing to waive any right to proceed further with production under such contract, it will frequently greatly expedite the making of payments under such contracts for the bureau, upon such waiver by the contractor, to give the notification of termination required by the contract and to proceed to make the payments to the contractor by the method and in the manner prescribed for in the termination clause. Where this is done there is no occasion for awaiting a final determination as to the total amount of the payments which will be due to the contractor under the operation of the termination clause; instead payments for raw material, payments for commitments to individual subcontractors, etc., may be made as rapidly as items are determined in the same manner that payments for the delivery of completed articles are made."

The circular then presents a suitable form for such waiver and notice of termination. Taking up the subject of partial payments, the circular says that the provision heretofore made for a partial payment of 75 per cent of the amount ascertained by the department to be due on any claim of the contractor or any item of the claim of the contractor has not been used to any important degree. In order to meet certain objections to this plan, which have been raised by claims boards and contractors, it is stated, claims boards are authorized to make use in proper cases of the following method to expedite the settlement of such elements of outstanding contracts as can be advantageously settled in advance of the complete termination of the contract. In numerous cases, it is explained, contractors are in agreement with the claims boards as to the basis of settlement, but a final disposition of certain of its elements cannot be made without investigation, which may take a considerable time.

Desire Quick Settlement

On the other hand, the circular says, certain elements can be determined and an immediate settlement made to the advantage of the government. This is held to be particularly true as to claims of prime contractors based on liability to subcontractors and as to material acquired by them in the proper performance of the contract. In such cases claims boards are authorized to enter into a supplemental contract substantially along the lines of what is known as form 1. This supplemental contract in effect provides for the reduction of production and a method of payment of the contractor for expenditures made, obligations incurred and work done with respect to the uncompleted portion of his contract. When such a supplemental agreement has been made, such items as have at that time been determined can immediately be vouchered and paid and all other items as rapidly as they can be determined may be vouchered and paid in a manner similar to payments under a termination clause as described.

With reference to subcontractors, it is pointed out that where a prime contractor has under negotiation a settlement of a claim of a subcontractor which forms an item in the principal adjustment, it is highly important that the claims boards should in every way facilitate a speedy adjustment of such claim. It is stated that the basis outlined in supply circular No. 111 can often be used to advantage in such adjustment, but large discretion necessarily is reposed in the local claims boards as to the method which is appropriate in the particular case. While it is not possible to lay down from Washington any definite instructions as to the method to be used, it is declared to be clear that a contractor should upon request be informed promptly by the local board as to what method it regards as appropriate in a particular case, and what basis of settlement it will approve.

The circular then presents form 1 dealing with the reduction of performance and the manner of payments for expenditures made, obligations incurred and work done with relation to the uncompleted portion of the contract, itemizing the various allowances that will be granted to the producer. Form B, relating to settlement for raw materials, component parts and articles in process on differences then is presented. It provides for certain reimbursement by the government on account of these items, to which the United States would take title, or, as an alternative, to have the government set a fair value on them, allow the contractor to retain the title and make the necessary deduction from the contract.

The circular closes with an interpretation of supply circular No. 111, as follows:

"At a meeting of the war depart-

ment claims board held Feb. 19, 1919, the following resolution was adopted: 'Resolved: That the following instructions be transmitted by the special members of this board to the respective bureaus for their information, future guidance and action.'

"It has been brought to the attention of the war department claims board that some diversity of interpretation and action exists in the various bureaus as to the principles to be applied in the adjustment of contracts under supply circular No. 111, where contracts are not being adjusted under the provisions of a termination clause.

"The principle of adjustment which is intended to be applied by supply circular 111 is that insofar as the contractor has properly made expenditures and incurred obligations in the performance of his contract which because of the suspension have not resulted in a finished product, the adjustment offered by the department should, in general, provide for reimbursement to the contractor of such expenditures properly incurred, with a reasonable remuneration for the use of the capital and services of the contractor in that part of his performance under the contract which does not result in finished products. Under supply circular 111 the contractor is thus compensated with respect to material in process by making a proper allowance up to 10 per cent on cost of articles in process under paragraph five. To fairly compensate him for his investment properly made in raw material not in process he should be allowed, in addition to the cost plus inward handling charges plus such proportion of overhead as is directly applicable, compensation for use of his capital tied up in such material at the rate of 6 per cent per annum, or if the capital is borrowed at the rate of interest which he pays for it, where the board has satisfied itself that such compensation is not included in the claim as carrying charges or otherwise and has not been taken into consideration in fixing the percentage of allowance under supply circular 111, paragraph five.

"It is recognized, however, that the negotiating boards may find exceptional cases where services have been rendered and capital used in the preparation for or performance of the contract, and the method outlined above will not result in just compensation. Attention is invited to the fact that in such event the contractor may claim additional compensation under the second paragraph of subsection five, paragraph three, of supply circular 111, and when so claimed just and reasonable compensation should be allowed by the board. Great care, however, must be exercised in making such allowances to see that there is no duplication of remuneration to the contractor and particular attention must be directed to such allowances and the basis upon which they are made in the papers submitted to the reviewing boards."

Informal Contract Settlement

Circular No. 17, which covers the procedure adopted by the war department claims board to be followed in the settlement of informal contracts recently validated by act of congress, calls attention to the fact "that the act does not authorize the execution of contracts which have not been heretofore properly executed. The bureaus shall not execute contracts with respect to agreements covered by the act, but shall proceed in the manner hereafter provided." Claims presented under this act will be classified as follows:

Class A.—Claims based on agreements made by an officer or agent acting under the authority, direction or instruction of the secretary of war, and the nature, terms and conditions of which have been reduced to contract form or are otherwise established by written evidence.

Class B.—Claims based on all other agreements covered by the provisions of Section 1 of said act.

These claims must be filed before June 30, 1919. A claims are to be presented in quadruplicate to the claims board on a form provided for of the bureau in which the alleged agreement was made and each copy is to be duly executed and verified.

It is provided that "Each bureau claims board upon the proper presentation of any claim is directed to examine into and determine the facts as to the nature, terms and conditions of the alleged agreement referred to in the statement of claim. If it find that an agreement within the provisions of Section 1 of said act was entered into, it will make a certificate in the form hereto attached. Such certificate shall not be executed except when it is attached to (1) an agreement heretofore reduced to contract form, or (2) a purchase order heretofore signed, or (3) a procurement order or notice of award heretofore signed which sets forth all the terms and conditions of the agreement, or (4) a document to be prepared under the supervision of such bureau claims board fully setting forth the nature, terms and conditions of the agreement, and which may be in the form of such contract or order as should in due course have been formulated to cover the agreement."

Class B claims are to be presented in sextuplicate by the form provided to the board of contract adjustment, Munitions building, Washington. The adjustment of these claims will follow the procedure provided for class A claims as far as it is applicable, "but those claims which are based upon alleged agreements entered into with an officer or agent acting under the authority, direction or instruction of the secretary of war shall be kept separate and given numbers of a different series from those entered into by an officer or agent acting under the authority, direction or instruction of the President; and the forms of award used by the board of contract adjustment shall provide for signature by that board and approval by the war department claims board."

Federal Iron and Steel Census Issued

WASHINGTON, March 11.—The census bureau of the department of commerce has issued a statistical report showing the steel tonnage in the hands of consumers in the United States on Sept. 1, 1918, together with the consumption of steel in the first half of last year and the estimated requirements for the last half. The report enumerates the tonnages according to main products and also according to 16 main classes of consumption, with the quantity and percentage of each product going into government contracts and the proportion of government commitments under each class of consumption. The statistics are viewed here as making an interesting contribution to the record of the performance of the steel and allied industries during the war. They were compiled for the war industries board at its request last August when efforts were renewed to conserve every available pound of steel.

Based on returns from 10,522 establishments, which, it is pointed out, does not mean the number of individual plants, the report shows 8,622,109 net tons of semifinished and finished iron and steel products were in stocks of consumers on Sept. 1, a sufficient quantity, it is estimated, to meet requirements for three and a quarter months. In addition, the consumers also had on hand on that date 1,873,988 tons, net, of scrap iron and steel. At no place in the statistical tables, however, is reference made, or are figures shown, giving the quantity of pig iron on hand, produced or required. The war industries board used THE IRON TRADE REVIEW'S and other monthly pig iron production reports, including its own weekly summaries received from the blast furnaces, in keeping in touch with pig iron situation.

Consumption of iron and steel products in the first half of 1918 aggre-

gated 14,546,862 tons, of which 6,992,124 tons were used for the government. Requirements for the last half of the year totaled 17,143,205, it being estimated the government commitments would absorb 9,930,775 tons. The statistics combine the consumption of the first six months with the requirements for the last half year and designate the total, 31,950,067 tons, "as representing the year's consumption." Of this tonnage, 17,077,292 tons were for government contracts, the amount being approximately 54 per cent of the "year's consumption." The term "government contracts" includes allied government orders and subcontracts on both government and allied commitments but excludes steel going into other manufactured products eventually bought by the governments.

Of the steel on hand at the end of August, the steel mills held 43.6 per cent, or 3,747,216 tons, according to the tables. The report explains the classifying of the mills as consumers because "of the specified classes of products in further processes of manufacture." The railroads held the second largest stocks, their aggregate tonnage being 940,312 tons, or 10.9 per cent. The shipyards, with 451,816 tons on hand, possessed only 5.3 per cent of the total. Jobbers and warehouses held 542,355 tons, or 6.3 per cent. Other consumers and the proportion of the total amount held by each were as follows: War department, 101,533 tons, 1.2 per cent; agricultural implement manufacturers, 305,409 tons, 3.6 per cent; motor vehicle manufacturers, 288,819 tons, 3.4 per cent; manufacturers of bolts, nuts, rivets, nails, etc., 189,950 tons, 2.2 per cent; electrical machinery builders, 116,873 tons, 1.4 per cent; manufacturers of engines, pumps, etc., and boilers and tanks, 217,926 tons, 2.5 per cent; machine tool builders, 69,044 tons, 0.8 per cent; tools and hardware manufacturers, 132,880 tons, 1.5 per cent; machinery manufacturers other than the foregoing, 193,739 tons, 2.2 per cent; munitions and ordnance manufacturers, 120,606 tons, 1.4 per cent; fabricators of structural material, 315,224 tons, 3.7 per cent; miscellaneous consumers, 855,345 tons, 10 per cent.

During the first six months of last year consumption of iron and steel along the lines similar to the purposes for which stocks were held, was as follows with the quantities noted for government contracts: Steel plants, 8,226,013 tons with 4,544,023 tons for government; railroads, 838,462 tons, none for government; shipyards, 529,106 tons with 496,243 for government; war department, 17,713 tons, all for government; agricultural implement makers, 417,393 tons with 30,295 for government; motor vehicle builders, 673,707 tons, 142,094 for government; bolts, nuts, rivets, etc., 325,295 tons, 165,049 for government; electrical machinery, 120,450 tons, 62,858 for government; engines, pumps, etc., 444,320 tons, 250,612 for government, machine tools, 79,443 tons, 49,380 for government; tools and hardware, 180,939 tons, 72,812 for government; other machinery, 344,465 tons, 184,230 for government; munitions and ordnance, 154,536 tons, 128,601 for government; fabricators, 789,528 tons, 481,131 for government; miscellaneous, 1,405,493 tons, 367,083 for government.

Space prevents the statement of stocks on hand, production and requirements of each of the steel products listed for each class of consumers as shown in the report, but the tonnages after the following list of products in their order show the aggregate respectively for stocks, consumption and production:

Ingots, blooms, billets, slabs, 1,692,879 tons, 4,942,888 tons, 5,203,234 tons; projectile steel, 381,000, 662,752, 1,023,394; sheet bars and tin plate bars, 190,317, 629,102, 747,474; skelp, flue, etc., 179,317, 321,586, 453,116; wire rods, 118,398, 427,733, 516,708; plates, 788,227, 1,145,467, 1,711,994; sheets, 724,839, 882,843, 921,431; merchant bars and shapes under 3 inches, 1,213,714, 1,757,735, 2,002,352; reinforced concrete bars, 85,952, 30,433, 42,869; long angle splice bars, 17,956, 40,423, 45,174; structural shapes, 581,328, 932,752, 1,257,446; seamless tubes, 78,228, 91,769, 113,123; tubular products other than seamless tubes, 440,333, 200,534, 235,184; rails, 715,905, 619,695, 668,407; rail joints, fastenings, etc., 181,334, 91,258, 97,787; tin plate, 301,950, 418,193, 471,302; barbed wire, 10,201, 31,409, 71,073; wire rope, 24,695, 14,881, 13,095; other wire products, 296,839, 473,666, 515,801; hoops, bands and cotton ties, 91,912, 146,995, 165,214; tool steel, 61,586, 44,089, 48,694; all other finished, rolled and drawn iron and steel, 412,137, 640,659, 623,838; scrap, 1,873,988, 4,453,030, 5,248,687.

The war department as a consumer is confined solely to the use of steel in arsenals. The war department figures include one navy yard as it was the only navy plant making a report, which accounts for the fact no navy tonnages are shown.

Price of Railroad Castings Reduced

WASHINGTON, March 11.—Prices for bolster, side frame and domestic car steel castings recommended by the American Iron and Steel institute to the war industries board and in effect the last quarter of 1918 were reduced 4 per cent at the conference held recently in the office of Robert S. Brookings, who until March 1 was chairman of the price-fixing committee of the war industries board. The reduction applies only to these castings for the 100,000 freight cars ordered by the railroad administration last May and to the side frames for 1300 of the 2030 locomotives ordered for the lines under government control. The reduction represents a saving of approximately $1,000,000 to the railroads which are to pay for the new equipment.

The institute's schedules, compiled under authority of the war industries board, are to apply on maintenance orders and as far as other contracts are concerned the prices to be stipulated are subject to the usual negotiations in trade. The journal box and coupler castings prices were reviewed but not changed and the brakebeam and miscellaneous malleable iron prices were not discussed. The revised quotations are gross sales prices.

The application of the revised prices to the side frames for only 1300 locomotives is due to the fact that the specialties for these engines, being built by the American Locomotive Co., were ordered direct by the railroad administration while the locomotives being built by the Baldwin Locomotive Works and the Lima Locomotive Works, Inc., are taking specialties ordered by the builders. The cars on order for the administration are of 40, 50, 55 and 70-ton capacity, according to design and type. The price schedules, revised as shown in the following table, do not specify the 55-ton type, but the prices for the 57½-ton type apply to the 55-ton car:

BOLSTERS (BODY OR TRUCK)

Capacity car	200 and over, per car: Quoted price	Reduction	Revised price
30-ton	$87.50	$3.50	$84.00
40-ton	99.50	3.98	95.52
50-ton	108.50	4.34	104.16
57½-ton	118.50	4.74	113.76
62½-ton	130.00	5.20	124.80
70-ton	165.50	6.62	158.88

TRUCK SIDE FRAMES

Freight Cars and Locomotive Tenders

Capacity car, tons	Quoted price A*	Quoted price P†	400 and over, per car: Reduction A*	Reduction P†	Revised price A*	Revised price P†
30	$118.50	$124.50	$4.74	$4.98	$113.76	$119.52
40	129.50	135.50	5.18	5.42	124.32	130.08
50	139.50	151.50	5.58	6.06	133.92	145.44
57½	154.50	166.50	6.18	6.66	148.32	159.84
62½	170.00	181.00	6.80	7.24	163.20	173.76
70	175.50	201.50	7.02	8.06	168.48	193.44

*Andrews design.
†Pedestal design.

Will Broaden Foreign Trade Data

Commodity Classification Committee Completes Tentative Draft of Revised Export and Imports Lists and Asks Criticism and Suggestions—Iron and Steel and Machinery Classifications Changed Extensively

WASHINGTON, March 11.—The commodity classification committee, named in November, 1918, to revise the import and export lists for the various foreign commerce summaries issued by the bureau of foreign and domestic commerce, has completed a tentative draft of the new classifications and has asked that they be fully considered and discussed in the trades preparatory to completion of the final schedules. The iron and steel and machinery classifications have been radically changed from the present form and the new draft is submitted here in order to facilitate the discussion and compilation of the final summary. Criticisms and suggestions are invited and are to be sent to G. B. Roorbach, chairman of the classification committee, United States shipping board, room 714 Munsey building, Washington. Mr. Roorbach has issued a statement with the schedules which is as follows:

"The war as well as the growth of our foreign trade has made evident the need of more detailed and better arranged statistics of imports and exports both from the point of view of the government and of private business men. In accordance with this purpose, a new classification of commerce commodities is now being made by a committee composed of representatives from the bureau of foreign and domestic commerce, the census of manufacturers, the treasury, the shipping board, the tariff commission and the war trade board. This committee is making every effort to work out a classification that will enhance the value of our trade statistics and that will give as much detail as is possible under the practical limitations of publication. To this end, the advice of the trade is being sought, in order to insure a practical and serviceable list of commodities to be reported in the monthly and annual summaries of our foreign trade, as issued by the department of commerce.

"Although the classification is made primarily for statistics of imports and exports, it is expected that it may be used as far as possible in other statistical studies, such as the statistics of domestic production as made by the census of manufactures.

"The proposed classification is based upon a decimal system which should greatly facilitate the collection and tabulation of the statistics by the use of mechanical tabulating machines, and also give elasticity to the classification, allowing additions or eliminations of items as trade conditions change.

"The subdivision in the classification is carried to five figures. Individual commodities may either be listed in a 'four figure' class or in a 'five figure' class depending on their relative importance, or as to whether the item is wanted only for our import trade returns. Space is provided in the classification so that commodities can be transferred from the five to the four figure classification or vice versa as trade warrants, without interfering with the comparability of the statistics from year to year. A commodity given a 'five figure' classification will appear only in the table of 'imports for consumption,' as published by the bureau of foreign and domestic commerce. The details for the 'five figure' headings will not be asked for exports. The 'four figure' items will be given for imports as well as for exports, except where the imports are insignificant."

The proposed classification for leading direct iron and steel products is as follows:

60-61 IRON AND STEEL; ORES, CRUDE, SEMI-FINISHED, AND MANUFACTURES OF, EXCEPT MACHINES AND VEHICLES.

600 IRON ORE.

6001 Iron ore, crude, hematite, magnetite and carbonate. (For ferro-manganese ore, ferro-chrome ore, etc., see under manganese, chromium, etc., 62 and 63.)

6009 Iron ore n. e. s.
- 60091 Calcined, roasted or treated ores.
- 60092 Pyrite sinter.

601 PIG IRON AND SCRAP IRON AND STEEL

6010 Pig iron used for iron content
- 60100 Pig, n.e.s. (free) (This includes basic pig, bessemer pig (0.04 per cent or more phosphorus), low phosphorus pig (below 0.04 per cent), foundry pig (high silica), malleable iron pig, forge or mill pig, kentledge, and all other pig, n.e.s. used for iron content).
- 60101 Ferro-silicon.

(For other iron alloy pig see under manganese, chromium, vanadium, nickel, etc., 62 and 63.)

6011 Scrap iron and steel (free).

602 STEEL; CRUDE AND SEMI-FINISHED (INCLUDES INGOTS, BLOOMS, BILLETS, SLABS, SHEET BARS AND TIN PLATE BAR).

6021 Bessemer and open hearth.
- 60211 Not containing alloys (free)
- 60212 Containing alloys.

6022 Crucible.
(For crucible plate steel, see 6040).

6023 Electric.

6024 Steel sheet bars and tin plate bar.
- 60241 Not containing alloys.
- 60242 Containing alloys.

6029 Crude or semi-finished steel, n.e.s.
- 60291 Not containing alloys.
- 60292 Containing alloys.

603 IRON AND STEEL; BARS AND RODS.

6031 Steel bars (merchant bars, reinforced concrete bars, mill shafting and all other steel bars, except sheet bar and tin plate bar, 6024).
- 60311 Bessemer or open hearth, not containing alloys.
- 60312 Bessemer or open hearth, containing alloys.
- 60313 Crucible, with or without alloys.
- 60314 Electric, with or without alloys.

6032 Iron bars, including iron merchant bars of all kinds.
- 60321 Bar iron.
- 60322 Muck bars.
- 60323 Bars of rolled or hammered iron and round iron in coils or rods.

6039 Iron bars n.e.s.

6033 Rods, iron or steel.
- 60331 Wire rods (rivet, screw, fence, nail, and other iron or steel wire rods including flat rods, up to 6 inches, ready to be drawn or rolled into wire).
- 60332 Cold rolled, cold drawn, cold hammered or polished.
- 60333 Rolled wire rods, in coils or bars, if made by crucible, electric or cementation process.
- 60334 Horseshoe nail rod.
- 60339 Rods, n.e.s. (includes spike and chain rods, belt and nut rods, etc.)

604 IRON AND STEEL; PLATES AND SHEETS, SKELP AND STRIPS—BLACK, GALVANIZED OR TINNED.

6040 Iron and steel plates—black, galvanized or otherwise coated.
- 60401 Crucible plate steel.
- 60402 Saw plates.
- 60406 Galvanized plates.
- 60409 Boiler and other plate iron or steel.

6041 Iron and steel sheets—black or common.
- 60411 Plain.
- 60412 Corrugated or crimped.
- 60413 Polished, planished or glanced.

6042 Galvanized iron or steel sheets, plain or corrugated.

6043 Tin plate, terne plate and taggers tin. (For manufactures of tin plate, see 617).

6044 Skelp.

6045 Cotton ties.

6049 Hoops, bands and strips of iron or steel, n.e.s.
- 60491 Hoop, band or scroll iron or steel (including barrel hoops) black.
- 60492 Hoop, band or scroll iron or steel—galvanized or otherwise coated.
- 60493 Steel in strips and flat wires (not exceeding 5 inches in width nor thicker than No. 15 wire gage) (dress steels, corset steels, corset clasps).
- 60494 Strips of iron or steel, black, n.s.p.f.
- 60495 Strips of iron or steel, galvanized, n.s.p.f.

(For ship and tank plates and other structural forms, fabricated, see 605).

605 STRUCTURAL IRON AND STEEL, AND PRESSED, SHEARED OR STAMPED SHAPES, N.E.S.

6051 Plain structural shapes, (beams, joists, angles, channels, car truck channels, T T columns and posts, deck and bulb beams, building forms, and all other structural shapes, not assembled or fabricated).

6052 Fabricated structural forms (Bridges, buildings, ship framing, etc.)

6053 Ship and tank plates, punched and shaped.

6054 Metal lath.

6058 Pressed, sheared or stamped shapes, not

advanced in manufacture beyond pressing, etc.
60581 Bessemer or open hearth steel.
60582 Crucible, electric or alloy steel.

606 RAILS AND OTHER RAILROAD IRON OR STEEL.
6061 Rails.
6062 Rail joints and fastenings (splice bars, fish plates, tie plates, and other rail joint shapes).
6063 Switches, frogs and crossings.
6064 Railroad spikes, bolts and nuts.

607 TUBULAR PRODUCTS AND FITTINGS.
6071 Seamless tubes.
6072 Wrought iron or steel pipes and tubes—black—(Lapwelded, butt welded, seamed or joined).
6073 Wrought iron or steel pipes and tubes, galvanized.
6074 Casings and tubes for oil wells and other drilled wells. (Includes casing, drive pipe, tubing lined pipe, boring tubes, etc.)
6075 Boiler tubes.
6076 Wrought iron or steel pipe or tube fittings—threaded.
6077 Cast iron pipe and fittings.
6079 Tubes, pipes, or fittings, n.e.s.

608 WIRE AND MANUFACTURES OF.
6081 Barbed wire.
6082 Galvanized wire.
60821 For fencing.
60829 Galvanized, n.e.s.
6085 Wire, n.e.s.
60851 Round iron or steel, black.
60852 Baling.
60859 All wire n.s.p.f.
6086 Wire fencing—galvanized.
6087 Wire rope and cables.
6089 Wire manufactures, n.e.s.
60891 Wire cloth and screen.
60892 Woven wire bed springs.
60893 Heddles or healds.
60894 Wire insulated with rubber, cotton, silk or other fabric.
60897 All wire products, n.s.p.f.
(For wire nails and staples see 613, for hooks and eyes see 699.)

609 CASTINGS AND FORGINGS, N.E.S.
6091 Gray iron castings, n.e.s.
6092 Malleable iron castings, n.e.s.
6093 Steel castings, n.e.s.
(This includes hammer molds, gun barrel molds, die blocks or blanks, etc.)
60931 Bessemer or open hearth, without alloy.
60932 Crucible, electric, or alloy steel.
6094 Iron castings, n.e.s.
60941 Cast iron plates, stove plates and irons, sadirons, tailor irons, hatters irons and castings and vessels wholly of cast iron.
60942 Chiseled, drilled, machined or otherwise advanced, but not made into finished articles.
60943 Hollow ware, coated, glazed or turned.
(For cast iron pipe and fittings see 607.)
6095 Steel shells and projectiles.
6096 Carwheels, tires and axles.
60961 Wheels, or parts of with or without axles for railway purposes and steel tired wheels for railroads and railway tires or parts of, wholly or partly manufactured.
60962 Axles, or parts of, axle blanks n.s.p.f.
6099 Forgings, n.e.s. not machined, tooled or otherwise advanced.

610 STOVES AND FURNACES (EXCEPT ELECTRIC)
6101 Coal, coke, and wood burning stoves (heating).
6102 Coal, coke and wood burning stoves and ranges (cooking).
6103 Gas stoves, ranges and water heaters.
6104 Oil and gasoline stoves for cooking and heating.
6105 Furnaces, warm air.
6106 Boilers, heating.
6107 Radiators.
6109 Stoves and furnaces (except electric) n.e.s.
61091 Stoves and furnaces n.s.p.f.
61092 Furnaces, welded, cylindrical and tubes or flues made from plate metal, and corrugated, ribbed or otherwise reinforced against collapsing pressure.
(For electric stoves see 78, Electrical apparatus)

611 STEEL FURNITURE, FILING DEVICES, SAFES AND SIMILAR OFFICE AND STORE FURNISHINGS.
6111 Office and store furniture.
6113 School and church furniture.
6113 Filing cases.
6114 Lockers and shelving.
6115 Safes.
6119 Metal furniture, n.e.s.

612 ENAMELED, GALVANIZED AND TIN WARE.
6121 Tin ware—table, kitchen, and hospital.
6122 Tin cans.
6123 Galvanized hollow or kitchen ware.
6124 Bath tubs, enameled.
6125 Lavatories and sinks, enameled.
6129 Enamel ware, table kitchen and hospital, n.e.s.

613 NAILS, SCREWS, BOLTS, NUTS, WASHERS, ETC.
6131 Nails and spikes, wire plain or galvanized.
6132 Nails, horse shoe.
6134 Nails, all other including tacks.
61341 Nails and spikes, cut (not including R. R. spikes).
61342 Tacks, brads and sprigs, cut.
61343 All other except railroad material, 605.
6135 Staples, wire.
6136 Wood screws.
6137 Machine screws.
6139 Bolts, nuts, rivets and washers (except railroad).
61391 Bolts with or without threads or nuts, or bolt blanks, of iron or steel.
61392 Nuts and nut blanks and washers.
61393 Nutslocks, spiral and lock washers.
61394 Rivets, studs and steel points, and rivets and studs for automobile tires.

614 CUTLERY AND NEEDLES.
6140 Needles.
61400 Crochet and tape needles, knitting needles, bodkins, and all other needles, n.s.p.f.
61401 Hand sewing and darning.
61402 Shoe machine.
61403 Knitting or sewing machine.
61404 Latch needles.
61405 Needle cases, furnished with assortments of needles.
6141 Knives, pen or pocket, clasp, pruning, budding; erasers, manicure, etc., having other than fixed blades and parts of.
61411 Finished, value up to $1 per doz.
61412 Finished, value more than $1 per doz.
61413 Assembled, not finished, not exceeding $1 per doz.
61414 Assembled, not finished, more than $1 per doz.
61415 Parts of, not exceeding $1 per doz.
61416 Parts of, more than $1 per doz.
6142 Razors—straight blade.
61421 Finished, value up to $1 per doz.
61422 Finished, value more than $1 per doz.
61423 Parts of, value up to $1 per doz.
61424 Parts of, value more than $1 per doz.
6143 Razors—Safety.
61431 Finished, value up to $1 per doz.
61432 Finished, value more than $1 per doz.
61433 Parts of, value up to $1 per doz.
61434 Parts of, value more than $1 per doz.
6144 Scissors and shears.
6145 Table and kitchen cutlery and steels (includes table, carving, cooks', kitchen, bread, butter, vegetable, fruit, cheese knives, forks and steels).
61451 Without handles.
61452 With handles.
(For plated ware, see 68, silver ware.)
6149 Cutlery, n.e.s. (includes butchers' (hunters', carpenters'; bench, curriers', drawing, farriers', palette, artists'; shoe knives, and swords).
61491 Without handles.
61492 With handles.
61493 Swords, side arms and blades.

615 TOOLS AND IMPLEMENTS (EXCEPT MACHINERY); AGRICULTURAL.
6151 Forks; pitch, spading and other.
6152 Hoes and rakes.
6153 Post and well augers.
6154 Scythes, sickles and cradles.
6155 Shovels and spades.
6156 Picks and mattocks.
6157 Pruning shears.
6158 Agricultural tools, n.e.s.
(For power agricultural machinery see 73, agricultural machinery.)

616–617 TOOLS AND IMPLEMENTS; WOOD WORKING, METAL WORKING, CONSTRUCTORS' AND SIMILAR TOOLS, N.E.S. (NOT INCLUDING MACHINE TOOLS AND KNIVES).
6161 Axes.
6162 Augers and bits.
6163 Blacksmith's tools and railroad tools, n.e.s.
61631 Tongs, hammers, sledges, truck, wedges, crowbars.
61632 Anvils.
6164 Drills and reamers.
6165 Files and rasps, including blanks.
6166 Hammers, hatchets, and adzes.
6167 Nippers and pliers of all kinds.
6168 Saws.
61681 Circular saws.
61682 Cross-cut saws.
61683 Mill saws.
61684 Pit and drag saws.
61685 Steel band saws.
61686 Hand, back and other saws, n.s.p.f.
6169 Wrenches.
6171 Measuring tools (including bevels, calipers and dividus, rules, squares, gages, speed indicators, test indicators).
6179 Tools, n.e.s. (except knives, 6149) (includes all tools, n.e.s. carpenters', machinists', stone cutters', plumbers', tinners', bakers', cobblers', except knives which are classified under cutlery 6149).

Forgers Plan Meeting

Pittsburgh, March 11.—The sixth annual convention of the American Drop Forgers' association will be held in Pittsburgh, June 19, 20 and 21, and plans for the convention steadily are taking shape. No official hotel headquarters will be engaged but the Chamber of Commerce auditorium has been secured for the meetings. The program has been completed and includes the following subjects: "Electric Welding as Applied to the Forging Industry"; "Testing of Materials"; "Powdered Coal Developed in the Forging Field"; "Sand Blast Versus Pickling"; "Heat Treating Problems that Originate in the Forge Shop"; "Forge Shop Profits"; "The Die Factor in Selling Forgings"; "Low Pressure Exhausts Steam Turbines"; "The Bonus System in the Entire Forge Shop."

Canada Optimistic on Foreign Trade

France Now in Market for $40,000,000 Worth of Machine Tools—India Wants 800,000 Tons of Rails and Fastenings, While Belgium, Roumania, Siberia and Other Countries Are Getting Ready to Purchase Heavily

(Special Correspondence)

TORONTO, Ont., March 10.—Canadian iron and steel manufacturers have every reason for optimism in regard to expansion of their industry. The outlook for trade for Canada in France, Belgium and certain balkan countries is discussed in a communication just received from Lloyd Harris, chairman of the Canadian trade mission in London, by the Canadian board of trade in Ottawa.

Mr. Harris recently visited Belgium and conferred with government officials and members of the international supply committee. He reiterates the statement that France and Belgium will endeavor to rebuild their crippled industries as rapidly as possible, supply their own requirements and keep the money within their own borders. He sees good prospects for trade during the next year for material and machinery needed in the rebuilding of industrial plants.

Belgium requires railway material, agricultural implements and machinery for industries. The Hudson Bay Co., Montreal, has been practically appointed to represent the Belgian government for the purchase of railway material and supplies.

France Needs Machine Tools

France has just entered the market for $40,000,000 worth of machine tools, for a like amount of agricultural machinery and for large supplies of copper and other minerals and raw materials. Contracts have just been concluded by which Canada will furnish credits of $25,000,000 to be spent in the purchase of important supplies in the dominion. As it is not expected that trade of this nature will be of long duration with France, it will be necessary for Canadian manufacturers to jump into this market immediately and make the most of it during the present year.

Roumania has likewise been furnished with credits to the amount of $25,000,000 for the purchase of materials in Canada. Roumania now wishes to discuss contracts for railway rolling stock and equipment and agricultural implements for which there is a big demand in that country. Siberia and eastern Russia will provide an extensive market for gasoline tractors and farm implements, while the Amur province of Siberia will require large supplies of agricultural plows, cutters, disc harrows, seeders, mowers, rakes, binders, threshing machinery during 1919, including machines, straw cutters, as well as parts for the above machines.

Within the borders of the dominion there is a market which has never been surpassed in the history of the country. There is sufficient business offering to keep the iron and steel manufacturers operating to capacity for two or three years. Included in the estimates of the Canadian government for the year 1919 is an item of $35,000,000 for steel rails, rolling stock and other railway equipment, more than $20,000,000 for extensions on the Canadian national railroad system and upwards of $10,000,000 for railroad betterments. In addition to these orders a number of contracts on foreign account have been placed and a number of others are assured.

The Canadian trade commission in Ottawa has received a cablegram from the Canadian minister in London stating that India is in the market for 800,000 tons of rails with angles, bolts, spikes, etc., for delivery in 1919, 1920, 1921. The department of trade and commerce, Ottawa, has received inquiries from South Africa for agricultural and dairy machinery, ammunition, bakers' supplies, butchers' supplies, bolts, box hooks, hardware, iron and steel, machines, nuts, locks, electrical material, electric irons, and a number of other articles, for which there is a big demand. In addition to these items South Africa plans railroad construction and betterments which will run into millions of dollars and will require locomotives, cars, rails, bolts, spikes and other equipment.

Roadmaking machinery is expected to be in much greater demand during the coming season. The large programs of road construction that are being entered upon in various sections of the dominion promise to broaden this market considerably. Only a small percentage of the plants engaged in this line of manufacture are devoted to the production of such machinery, as it is felt that the Canadian market is too limited to provide much trade along this line. An accession of activity in this department would be of great importance, and judging from the prospective programs of road construction business will be much better than in the past.

In addition to the Canadian demand for roadmaking machinery, prospects are bright for export trade in these articles. Great Britain has already set aside more than $150,000,000 for roadmaking machinery, chiefly for Scotland. Road rollers, stone crushers, steam tractors, spreader wagons and all other equipment necessary for the construction and repair of roads will be required, and probably will not be supplied entirely from within the British isles. The dominion of Canada will also furnish a large market for agricultural machinery, while France, Belgium, Roumania, Russia, Siberia, South Africa, New Zealand, Australia and Great Britain, will require vast stores of machinery for tilling the soil. Representatives of the Irish Co-operative Agricultural society, now in Ottawa, have concluded arrangements for the purchase of large quantities of agricultural machinery. A large order has been placed with the Frost & Wood Co., Smiths Falls, Ont., and others will be closed soon.

Arranging Program

Chicago, March 8.—Details of the program for the annual convention of the National Metal Trades association at the Hotel Astor, New York City, April 21-24, are being arranged. The executive committee will meet at Atlantic City, March 27-28, to outline the program and make other preliminary arrangements. Monday, April 21, the executive committee will hold a session beginning at 10 o'clock and the secretaries will have dinner at 7 o'clock. On Tuesday the administrative council will meet at 10 o'clock and local branch secretaries will have a session the same hour. The alumni dinner will be served at 6:45 o'clock.

The main convention will hold morning and afternoon sessions at 9:30 and 2 o'clock Wednesday, with the annual banquet at 7 o'clock. On Thursday convention sessions will be held morning and afternoon, and the incoming administrative council will meet during the day.

Obituaries

HARRY L. FROST, president of the Frost Steel & Wire Co., Ltd., Hamilton, Ont., and president of the Frost-Superior Fence Co., Cleveland, died on March 7, at the French hospital in New York City, from pneumonia following an attack of influenza while on a business trip. Mr. Frost was born in Danville, O., about 44 years ago. He located in Canada in 1898 and started the Frost Wire Fence Co., at Welland, Ont., which later was removed to Hamilton where it was developed into one of the largest of its kind in Canada. Its name was changed later to the Frost Steel & Wire Co., Ltd., and the Cleveland company to the Frost-Superior Fence Co. Interment took place at Hamilton.

Daniel E. Hunt, formerly manager of the Cleveland Machine works, Worcester, Mass., died at his home in that city, March 3, aged 85 years.

Malcolm Gifford, Hudson, N. Y., president of the Gifford-Wood Co., manufacturers of ice harvesting machinery and elevator conveyances, died March 5.

Charles H. Kirkman, at one time president of the American Wire Co., died Feb. 25 at Chicago, aged 78. He had been a resident of Chicago since 1871. When the International Harvester Co. was formed, he was one of the organizers.

Capt. Harry Sincock, aged 57, died at Biwabik, Minn., Feb. 27 of apoplexy. He was born in Cornwall, England, and located in the United States at the age of 12. Associated with W. J. Nicholas, he developed the Ajax mine at Biwabik.

Earl Colt Eldredge, widely known as an expert mechanic and electrician in the design and construction of delicate instruments for measuring electric energy, died at his home in Springfield, Mass., Feb. 27, aged 51 years.

George Welsby Scott, a director of the Olivet institute, and a member of the Western Society of Engineers, died Feb. 28 at Battle Creek, Mich. He formerly was on the engineering staff of the Pullman Co., and was the inventor of the steel car. In recent years he specialized in appraisal of manufacturing and industrial property.

Charles Pratt Bush, aged 55, died of heart disease at his home in Louisville, Ky., recently. He became associated with the railroad contracting firm of W. S. McCracken and Bros., and engaged in construction of transcontinental railroads. In 1903 he organized the Dean Tie Co., which later was changed to the Ohio Valley Tie Co.

James D. Field, formerly superintendent and general manager of the old Field Foundry Co., Trenton, N. J., died recently at his home in that city at the age of 83. He had been ill for a long time. He was born in Trenton and following a grammar school education became a structural engineer. Later he became an official of the foundry conducted by his father, Timothy Field.

Robert G. Scott, for many years connected with the American Sheet & Tin Plate Co., died at his home in Pittsburgh, March 3. He was 66 years old and a native of Pittsburgh. He became chief clerk of the Apollo Iron & Steel Co., Apollo, Pa., in 1898, and remained with that company until the organization of the American Sheet & Tin Plate Co., when he accepted a similar position with the new organization.

William Dale Rudy died Feb. 16, following an attack of bronchitis which resulted from influenza. Mr. Rudy was born in Columbus, O., 1881, and was graduated from a Pottstown, Pa., high school. Until he located in Philadelphia, about 13 years ago, he had been connected with furnace plants in the east, south and middle west. At Philadelphia, he, with Mr. Smith, opened a consulting analytical laboratory. He was a member of the Engineers' club of Philadelphia and of the K-Koal society.

John Ruddiman, vice president and director of Ilsley-Doubleday & Co., 229-231 Front street, New York, died March 3, at Yonkers, N. Y., following a minor operation. Mr. Ruddiman, who was born in New York City 66 years ago, was associated with Ilsley-Doubleday & Co. in the graphite and lubricating compound business for the past 40 years, and he was well known in the iron and steel industry as inventor of a blast furnace gas cleaning outfit, and as sole agent for the Mullen blast furnace tapping machine.

Dr. John J. Harty, president of the Canadian Locomotive Co., Kingston, Ont., died in London, England, Feb. 23, from an attack of pneumonia. He left Canada on Jan. 29 on a business trip in the hope of receiving orders for his company and was seized with an attack of bronchitis a few days before his death. He was a son of Hon. William Harty, the former president of the company, and graduated in medicine but never practiced. He was for many years connected with the company, first as secretary, then as general manager, finally succeeding his father as president.

Ralph H. Brown, vice president and chief engineer of the Eastern Bridge & Structural Co., Worcester, Mass., of which he was one of the founders in 1900, died of pneumonia at his home in that city, Feb. 22, aged 58 years. A native of Canfield, O., a graduate of Wooster college, Wooster, O., and Dartmouth college in 1885, his first business connection was with the Boston Bridge Works, Inc., as chief engineer, where he remained until he went to Worcester. With A. Sherman Miller Jr., treasurer, he started the Eastern Bridge & Structural Co., fabricator of iron and steel.

Charles O. Olson, superintendent of the foundry operated by the Johnston & Jennings Co., Cleveland, died in that city a few weeks ago. On Jan. 10 Mr. Olson was injured by a fall, resulting in concussion of the brain and subsequent paralysis. He was a foundryman of wide experience and prior to his affiliation with the Johnston & Jennings Co., 15 years ago, he was the proprietor of a foundry and machine shop at Massillon, O. He was born July 2, 1864, at Stockholm, Sweden, and came to this country with his parents at the age of 13 years. He served his apprenticeship at Erie, Pa.

Harry Demarest Townsend, electrical engineer of the Dominion Iron & Steel Corp., Sydney, N. S., died recently following a brief illness of pneumonia. Mr. Townsend was 44 years old and had been connected with the electrical work of the iron and steel industry for the past 20 years. His first connection was with the Ohio works of what was at that time the National Steel Co. He became assistant electrical engineer of the Lorain, O., works of the National Tube Co. in 1910, severing this connection in November, last year, to become electrical engineer of the Dominion Iron & Steel Corp.

:: Here and There in Industry ::

AT the annual meeting of the stockholders of the Superior Steel Corp. held at Richmond, Va., recently, the following were elected directors: Robert K. Cassatt, Harold Benjamin Clark, James H. Hammond, Edwin W. Harrison, Edmund C. Lynch, F. Wilson Prichett and Charles H. Forster. Messrs. Clark, Prichett and Forster are the new members of the board and replace W. J. K. Vanston, Charles A. Mackie and H. F. Devens.

The directors at a meeting held in New York, Feb. 24, organized as follows: James H. Hammond, chairman of the board; Edwin W. Harrison, president; Charles H. Forster, vice president and treasurer, and H. D. Sarge, secretary and assistant treasurer. Mr. Forster moves up to the position vacated by the resignation a short time ago by H. F. Devens, while Mr. Sarge succeeds Mr. Forster as secretary and assistant treasurer of the company.

Mr. Forster has been with the Superior company for about two years, having previously been connected with the American Iron & Steel Mfg. Co., Lebanon, Pa. Mr. Sarge, who has been with the Superior company about a year, also was previously identified with the American Iron & Steel Mfg. Co., serving as chief accountant and remaining with the Bethlehem Steel Co. for a short period in charge of merchandise sales after that company took over the American Iron & Steel Mfg. Co.

* * *

THE contract has been let for an office building for the Enos & Sanderson Co., Buffalo, in connection with their steel warehouse at Bushnell avenue and the Erie railroad.

* * *

CONSTRUCTION of one of the largest drydocks on the Great Lakes is planned by the Foundation Co., Port Huron, Mich. It will be 659 feet long and will have sufficient depth and breadth to accommodate the largest boats. A wharf 1100 feet long is now under construction.

* * *

ANNOUNCEMENT is made by M. C. Fairchild & Co., Inc., New York, exporters of railroad supplies, that an office has been opened in the Equitable Trust Co. building, 347 Madison avenue. Maurice C. Fairchild is president and Joseph F. O'Boyle is secretary and treasurer.

* * *

THE American Steel Spring Co., Chicago, through J. H. Benjamin, its president, has bought a site and plant at Sangamon and Cornell streets, from the American Hide & Leather Co. It contains about 23,000 square feet, improved with 3 and 6-story buildings, which are being remodeled extensively for occupancy by the purchasing company.

* * *

THE Brisk Blast Mfg. Co., Monroe, Mich., recently moved into a plant formerly occupied by the Swiss Magneto Co. This plant, which is of brick construction, has been remodeled and new machinery installed. The company manufactures automobile pumps and accessories, and expects to reach a capacity production of 3000 pumps a day.

* * *

WILLIAM H. JUTTNER, Milwaukee, has established offices at 428 Jefferson street as direct representative of the following manufacturers of power and heating equipment and machinery: Scott Valve Co., Chicago; Plant Engineering & Equipment Co., Inc., New York; James P. Marsh & Co., Chicago; Viking Pump Co., Cedar Falls, Ia., and the Service Rubber Co., Milwaukee.

* * *

THE Inland Steel Co., with steel works at Indiana Harbor, Ind., has just filed deeds covering the purchase of a strip of land along the shore of Lake Michigan a mile long, including 93 acres and riparian rights, immediately adjoining the city of Gary on the east. It will be held for future use as a dump for slag and other mill refuse when the present lake front holdings at Indiana Harbor have been filled to the government's limit. It will be possible to fill into the lake until the company will have approximately a square mile of made land. Officials of the Inland Steel Co. assert there is no intention to build on this land unless future plans develop in that way.

* * *

THE Duquesne Wire Rope Co., 33 Water street, Pittsburgh, has made application for a charter under the laws of Pennsylvania. The incorporators are: H. D. Walters, president; William Simpson, secretary; A. E. Harn, treasurer. These men formerly held the charter of the Pittsburgh Wire Rope Co., which they recently sold out to interests which are now building a plant to manufacture wire rope at Verona, Pa.

* * *

PRODUCTION has been begun at the new plant of the Chicago Steel Corp. in Chicago, the equipment consisting of electric furnaces, forging hammers and rolling and finishing mills, with auxiliary equipment. The product will consist of carbon, alloy and special analysis steel in rounds, flats, squares and hexagons. District sales offices have been opened at 208 South LaSalle street, Chicago, in charge of Frank H. Johnson.

* * *

THE International Fuel Corp. with offices in the Frick building, Pittsburgh, was recently incorporated. Major Ralph H. Knode, who was connected with the federal fuel administration during the period of the war, is president of the new company, and C. Ed. Beatty, who served in the raw materials division of the fuel administration, is vice president; Elmer D. Dill is treasurer; Lewis H. Kelly, formerly connected with the National Fuel Co., is sales manager; F. A. Cooper, formerly affiliated with Marvel & Co., Pittsburgh, and C. R. Wilson, are directors.

* * *

AT their annual meeting, held recently, stockholders of the A. Garrison Foundry Co., Pittsburgh, elected the following officers: President, John H. Ricketson Jr.; vice president, Oliver G. Ricketson; general manager and treasurer, Jesse R. Williams; and secretary, assistant treasurer and assistant to the general manager, George W. Caulkett. The officers form the board of directors. The president, John H. Ricketson Jr., has been serving as captain with the 315th infantry, A. E. F., in France and was badly incapacitated by shell shock during the battle of the Argonne forest. He now is rapidly recovering. The Messrs. Ricketson held their present positions since the late 90's. Mr. Williams is promoted from the accounting department, while Mr. Caulkett is transferred from the engineering and estimating department.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

JOHN BINDLEY, who recently was elected president of the Pittsburgh Steel Co., Pittsburgh, to succeed the late Wallace H. Rowe, has been identified with the company since its inception in 1902, having been associated with Mr. Rowe in its incorporation. Mr. Bindley was born in Pittsburgh 72 years ago and has always made his home in that city. He began his business career in 1860 with John England who conducted a retail hardware business on the corner of Liberty and Ninth streets, Pittsburgh. Mr. Bindley later purchased the interest of Mr. England and moved his business to Seventh avenue, where it was conducted as the Bindley Hardware Co. In 1892 this concern took over the sale of the products of the Pittsburgh Wire Co., Braddock, Pa., later merged with the American Steel & Wire Co., and this marked the beginning of Mr. Bindley's connection with the steel and wire business. He succeeded his brother, Edwin Bindley, as vice president of the Pittsburgh Steel Co., in 1906. In addition to his connection with the Pittsburgh Steel Co., Mr. Bindley is a director of the Pittsburgh Steel Products Co., is president of the Neely Nut & Bolt Co., and is a director of a number of other industrial interests. He is a former president of the National Hardware Jobbers' association and served a number of terms as president of the Pittsburgh chamber of commerce. He is president of the Duquesne National bank and a trustee of the Dollar Savings bank, Pittsburgh. He holds membership in the Bankers' Club of America, the Duquesne club, the Pittsburgh Athletic association, the Oakmont Country club, the Pittsburgh Golf club, the Automobile Club of America, and the Pittsburgh Country club.

A. F. Huston, president of the Lukens Steel Co., Coatesville, Pa., is at Palm Beach, Fla.

H. N. Trimble, president of the H. N. Trimble Steel Co., Pittsburgh, has been elected a director of the Vulcan Steel Products Co., New York.

William G. Ireland, sales manager of the Jamison Coal & Coke Co., Jamison, Pa., is reported to be making splendid progress after an operation for appendicitis.

M. G. Baker, who recently returned from France, where he served with the American expeditionary forces as lieutenant-colonel of ordnance, has resumed his duties as assistant general

JOHN BINDLEY

manager of sales of the American Vanadium Co., 120 Broadway, New York.

Charles Hopkins, superintendent of the Philadelphia factory department of the Lebanon Valley Iron & Steel Co., Hebron, Pa., has resigned to take up farming. He is succeeded by Charles Donley.

J. D. Jones, chief of the waste reclamation service, department of commerce, has resigned to take up private work in New York. His duties in Washington will be taken up by Capt. H. L. Baldensperger.

W. A. Perry, formerly connected with the Greensburg-Connellsville Coal & Coke Co., on March 1, assumed his duties as coal and coke agent of Cooper, Claypool & Co., Ltd., Oliver building, Pittsburgh.

Lieut. Sherman C. Amsden, on his return from military service, has been made assistant to the president of the Mudge & Co., Chicago, in charge of publicity, investigations and sales campaigns.

Roy W. Heffner, superintendent of the by-product coke plant of the United Furnace Co., Canton, O., has resigned his position to become manager of the Rainey-Wood Coke Co., Swedeland, Pa.

Lieut. Thomas D. Graham has received an honorable discharge from the army and has resumed his former duties as Pittsburgh district sales manager for the Bourne-Fuller Co., Cleveland, at 320 and 321 Oliver building.

George B. Norcross has been placed in charge of the recently established branch office in the Kresge building, Detroit, of the Hess Steel Corp., Baltimore. He has been representing that company in that district for some time.

Charles C. Rand, who has been attached to the United Bureau of Standards, Pittsburgh, has accepted an offer from the National Lamp Co., Cleveland, and will assume his new duties as research chemist for that company shortly.

George E. Thackray, Johnstown, Pa., consulting engineer and patent attorney, has been appointed by the president of the American Institute of Mining and Metallurgical Engineers, as one of their members on the American engineering standards committee.

Orley A. Freeman, recently discharged from the United States army, after 18 months of service, has returned to his former position as sales manager with the United Iron Works Co., Joplin, Mo. He has been affiliated with the company since 1905.

Frank G. Wallace of Pittsburgh, vice president of the Canadian Locomotive Co., Kingston, Ont., has been elected president to succeed the late Dr. J. J. Harty. J. L. Whiting, Kingston, succeeds Mr. Wallace as vice president.

F. C. Elder, formerly chief metallurgist of the Cleveland district of the American Steel & Wire Co., now is chief metallurgist for all plants of that company, succeeding S. M. Roggers. His headquarters are at Pittsburgh. L. H. Dunham is Mr. Elder's successor at Cleveland.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

MAJ. C. E. WHIPPLE has been honorably discharged from the United States army and has returned to his duties as general manager and treasurer of the New York Central Iron Works Co., Hagerstown, Md. In May, 1917, Major Whipple entered the service with the commission of captain of engineers, and went into military training at American university, near Washington. Completing this course, he served for a time at Camp Lee, Petersburg, Va., from where he was ordered to France on detached duty in December, 1917, and there placed in charge of the repair and replacement shop of the corps of engineers. At that time these shops existed in prospect only, and it became Captain Whipple's duty to plan suitable buildings, choose proper sites, and secure the men, materials and equipment for construction and operation. Experience gained from 7½ years on Panama canal work had taught the value of utilizing to best advantage the materials at hand or easily secured, and the work went forward rapidly despite material difficulties. Efficient handling of this work secured for Captain Whipple the title of major, and extended duties as officer in charge of construction, organization and operation of shops, which at the time the armistice was signed, consisted of three base shops employing the efforts of 500 men, and of several mobile shops employing an equal number of men. This force placed in operation the first American expeditionary force iron foundry in France, securing quick operation by using gas house coke instead of waiting for the regular material.

L. C. Jacobus has been placed in charge of the branch office opened in room 505 Ellicott Square building, Buffalo, by the Tate-Jones Co., Inc., Pittsburgh, furnace engineers.

William Pigott, vice president of the Pacific Coast Steel Co., Seattle, acted as the accredited representative of the mayor of Seattle, at the governors' and mayors' conference last week at Washington.

J. H. Casebeer, for the last five years supply agent of the American Steel Foundries, Sharon, Pa., has resigned and will go into business for himself in Indiana. His successor has not been appointed and probably will not be until the plant is ready to resume.

Rodney Thayer has resigned as president of the Penn Seaboard Steel Corp., and has been elected chairman of the board of directors. Charles Hart, president of the Delaware Steel Co., has been elected to succeed Mr. Thayer as president of the corporation.

Maj. Gen. Clarence C. Williams, chief of ordnance, has been ordered by the war department to report to General Pershing in France for the purpose of inspecting the operation of the ordnance department in the American expeditionary forces. He also will make inspection of ordnance in England.

H. P. Rockwell will visit France, Great Britain and other European countries for the Yawman & Erbe Mfg. Co., Rochester, N. Y. Upon his return, he will open a new export office in New York City for the company and will develop its foreign trade. He has been affiliated with the Yawman & Erbe company for 15 years.

J. T. Plummer who has been connected with the Haynes Stellite Co., Kokomo, Ind., for the past two and one-half years as district manager at Cleveland, spending considerable time at the executive offices in Kokomo, has resigned. He is to open sales offices in Chicago for the Kingsley Mfg. Co., Indianapolis, to sell its fabric pulley coverings.

C. A. Barnes of the American Board of Scrap Iron Dealers has returned to his office in the Pennsylvania building, Philadelphia, after a vacation of two months in California. Although the need for many of its activities has past, the board will maintain its office as a result of a request by the railroad administration. It is likely, however, that its work will be discontinued shortly.

Maurice N. Landay, manager of the Pittsburgh office of the Wilkoff Co., Youngstown, O., and a director in that company, hereafter will make his headquarters at the Hudson Terminal building, Church street, New York, where the company has established an office for the handling of export business in both new and old materials. Mr. Landay will retain direction of the Pittsburgh office of the company and make periodic visits.

William L. Hoffman, Philadelphia sales agent of the Brier Hill Steel Co., Oliver building, Philadelphia, has been elected president of the newly formed Steel club. This organization will meet at the Manufacturers' club or other places in Philadelphia, for luncheon on the second Tuesday of each month. Frank W. Jones, of the Eastern Steel Co., Philadelphia, is vice president and treasurer of the Steel club.

R. H. Smith has been placed in charge as district manager of the recently opened office and warehouse in Boston, of the Aborn Steel Co., 22 Clarke street, New York. He formerly was with the Colonial Steel Co. and the Brown-Wales Co. F. J. Schwarb, formerly with Beals & Co., and the Cygnet Mfg. Co., Buffalo, is now associated with the Aborn Steel Co., in its Buffalo branch, 520 Marine Bank building.

B. S. McConnell, formerly Ohio and Michigan representative with headquarters in Cleveland, of the wood block flooring department of the Republic Creosoting Co., Indianapolis, has been appointed manager of the wood flooring department of the company and will be located at the home office in Indianapolis. H. C. Dawson has been placed in charge of the Cleveland office to succeed Mr. McConnell.

Alfred S. Ayres has resigned as secretary and purchasing agent of the Sanitary Co. of America, Linfield, Pa., manufacturer of soil pipe, fittings, plumbing specialties, etc. B. W. Frederick succeeds him as secretary, in charge of sales and advertising. For many years he was connected with the Keystone Supply & Mfg. Co., Philadelphia. Grant P. Bechtel, who has been in the accounting department for several years, has been elected assistant treasurer. L. A. Shiffert, affiliated with the Sanitary company for many years, has been elected assistant secretary and purchasing agent, in charge of the buying and manufacturing end of the business.

Men of the Machinery Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

CHARLES W. JOHNSON, who has been general superintendent of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., since 1912, has been promoted to be assistant manager of works. He became affiliated with the company in 1907 as chief inspector of works, holding that title for about five years.

Mr. Johnson was graduated from Ohio State university and began his business career as draftsman with the Steel Motor Co., Johnstown, Pa. One year later, he became associated with the Bullock Electric Co., Cincinnati, holding the successive positions of chief draftsman, engineer and production manager. He then in 1904 became superintendent of the Allis-Chalmers-Bullock, Ltd., Montreal, and three years later entered the employ of the Westinghouse Electric & Mfg. Co., as chief inspector of works. Mr. Johnson is a member of the American Society of Mechanical Engineers, American Institute of Mining Engineers and the Engineers' Society of Western Pennsylvania. In 1917, he was elected vice president of the American Institute of Metals.

W. B. Gibson, manager of the mining machinery department of the Allis-Chalmers Mfg. Co., Milwaukee, has been made manager of the small tank department.

H. A. Jackson, president of the Chicago Pneumatic Tool Co., Chicago, has returned from England where he went to inspect the foreign plants of the corporation.

George N. Van Sweringen has been promoted from sales representative to assistant to the vice president of the Chicago Railway Equipment Co., with headquarters at Chicago.

H. C. Alleman, formerly of the sales force of the Lewis Foundry & Machine Co., Pittsburgh, has joined the sales force of the Pittsburgh Iron & Steel Foundries Co., Pittsburgh.

E. E. Wethey, formerly connected with the New England Westinghouse Co., Chicopee Falls, Mass., has accepted a position as chief engineer of the Stoughton Process Corp., New York.

George F. Hopkins, who for 10 years was superintendent of the Frost Gear & Forge Co., Jackson, Mich., has been made works manager of the Logansport Machine Co., Logansport, Ind.

W. H. Sherman has been made superintendent of the Superior Machine Tool Co., Kokomo, Ind. He formerly occupied a similar position with the

CHARLES W. JOHNSON

Davis Machine Tool Co., Inc., Rochester, N. Y.

Frank C. Thompson has been appointed purchasing agent of the Link-Belt Co., at its Indianapolis plants. He formerly was general storekeeper for the Indianapolis and Chicago plants.

Peter P. Wagener, formerly connected with the Chicago office of the W. F. Davis Machine Tool Co., and who recently was discharged from army service, has been made assistant to Manager C. C. Horner of the Cleveland office of the W. F. Davis Machine Tool Co.

Elmer D. Pellegrin, Evansville, Ind., has been promoted from production manager of the Evansville works of the Bucyrus Co., South Milwaukee, Wis., to general production manager of both Evansville and Milwaukee works, with headquarters at the general offices in South Milwaukee.

A. S. Allan, assistant sales manager of the International Harvester Co., Hamilton, Ont., has been transferred to St. John, N. B., as sales manager at that point. S. P. Thayer, formerly sales manager at St. John, is placed in charge of the sales department at Hamilton to succeed the late F. E. Breckenridge.

Frank Hodson, president of the Electric Furnace Construction Co., Finance building, Philadelphia, returned from Europe, Feb. 24, accompanied by Harry Etchells. Mr. Etchells is one of the inventors of the Greaves-Etchells furnace and will act in an advisory capacity on latest European practice during his short stay in this country. Mr. Etchells is an electro-metallurgical engineer of wide experience.

Cline B. Finnell has been appointed private secretary to Walter A. Zelnicker, president of the Walter A. Zelnicker Supply Co., and affiliated companies in St. Louis. Mr. Finnell, who recently returned from officers' training school at Camp Pike, Arkansas, formerly was traveling secretary to the general superintendent of the C. B. & Q. railroad and later was private secretary to Clarence H. Howard, president of the Commonwealth Steel Co.

Capt. A. U. Wetherbee who recently received his discharge from the chemical warfare branch of the service and who was formerly chief engineer and assistant works manager of the Niagara Alkali Co., has accepted a position as chief mechanical engineer with the Powdered Coal Engineering & Equipment Co., Chicago. C. C. Wallace, formerly manager of loading of munitions section of the Stenotype Co., Indianapolis, now is director of development and service for the company.

Staunton B. Peck, acting president of the Link Belt Co., Philadelphia, and R. S. Dyson, in charge of special machinery drives for that company, were the speakers at the regular monthly meeting of the New England Foundrymen's association held at the Exchange club, Boston, March 12, at 5 o'clock. The subject discussed was the economical handling of foundry materials and the silent chain drive for blowers and rumblers. Papers submitted were accompanied by a number of lantern slides.

Completing New Income Tax Return

Specimen Form Filled Out So as to Make Clear Many Uncertainties Arising from Various Situations—Not Necessary to Explain in Detail Reason for Time Extension—More Questions Answered

IN last week's issue of THE IRON TRADE REVIEW we presented facsimiles of the forms for tentative income tax returns of individuals and corporations. In filling out these returns, it is not necessary to explain in detail as to why a 45-day extension is desired. The commissioner of internal revenue has made the following announcement in this connection:

"The statement that the taxpayer is unable by March 15 to execute and file the complete return will be accepted under the new procedure as sufficient reason for extending for 45 days the time for filing complete income and excess profits returns, provided in every case the taxpayer on or before March 15 pays at least 25 per cent of the estimated amount of the tax due."

Many questions have been received from individuals, partnerships, and personal service corporations, the answers to which may be found by reference to the explanations and instructions on the accompanying reproduction of form 1040. As the best answer to such questions, we have worked out and present herewith a specimen of such a return. The return of this fictitious individual, George Brown, exhibits the result of his operations in a large business of which he is the sole proprietor, together with his share as officer and stockholder in a personal service corporation, as well as his distributive share of the profits of a partnership. Furthermore, it shows a profit on a bond transaction, as well as a sale of real estate, together with income from it before the sale. In addition, the individual is represented as owing $64,000 in Liberty bonds, and as having received dividends in cash and stock from corporations, out of earnings accumulated in 1918 as well as in prior years. The return, therefore, furnishes a comprehensive illustration as to how to make out this form, as it covers all phases entering into the preparation of an income tax return by an individual. Of course, the average individual will not have occasion to use all of the elements shown here but he can pick out just those points which cover his particular case.

Income tax department conducted by Wolff, Miller & Co., certified public accountants, 1328 Broadway, New York.

Questions and Answers

QUESTION: It has been our custom, when the profits would warrant, to pay our employes a bonus in addition to their salaries. At our annual meeting in January it was voted to allow a bonus for 1918. *The question now arises, are we allowed to deduct this as an expense for* 1918, *before making our final report on net income?*

ANSWER: Yes, you are entitled to deduct bonuses to employes as expenses

TABLES AND INSTRUCTIONS FOR CALCULATION OF SURTAX.

SURTAX RATES FOR 1918.

Amount of net income.	Rate.	Total surtax on each amount.	Amount of net income.	Rate.	Total surtax on each amount.
A	B	C	A	B	C
$5,000	1%		60,000	20%	$8,110
6,000	2%	$10	62,000	20%	8,510
8,000	3%	40	64,000	21%	8,930
10,000	3%	110	66,000	21%	9,370
12,000	4%	190	68,000	22%	9,810
14,000	5%	280	70,000	22%	10,250
16,000	6%	430	72,000	23%	11,210
18,000	7%	550	74,000	23%	11,680
20,000	8%	710	76,000	24%	12,160
22,000	9%	890	78,000	24%	13,210
24,000	10%	1,090	80,000	25%	14,010
26,000	11%	1,310	82,000	25%	14,510
28,000	12%	1,550	84,000	26%	15,030
30,000	13%	1,810	86,000	26%	17,110
32,000	14%	2,090	88,000	27%	17,650
34,000	15%	2,390	90,000	27%	18,210
36,000	16%	2,710	92,000	28%	18,790
38,000	17%	3,050	94,000	28%	20,350
40,000	18%	3,410	96,000	29%	21,610
42,000	19%	3,790	98,000	29%	22,250
44,000	20%	4,190	100,000	30%	23,210
46,000	21%	4,610	150,000	32%	39,210
48,000	22%	5,050	200,000	34%	55,210
50,000	23%	5,510	250,000	36%	73,210
52,000	24%	5,990	300,000	38%	92,210
54,000	25%	6,490	500,000	40%	168,210
56,000	26%	7,010	1,000,000	42%	378,210
58,000	27%	7,550	1,000,000+	44%	

SURTAX RATES FOR 1917.

Amount of net income.	Rate.	Amount of surtax on each rate.
A	B	C
$5,000	1%	$50
7,000	2%	70
10,000	3%	90
12,000	4%	80
14,000	5%	100
20,000	6%	120
40,000	8%	1,600
60,000	10%	2,000
80,000	12%	2,400
100,000	14%	2,800
150,000	16%	8,000
200,000	18%	9,000
250,000	20%	10,000
300,000	22%	11,000
500,000	24%	48,000
750,000	26%	65,000
1,000,000	28%	70,000
1,500,000	32%	160,000
2,000,000	36%	180,000
2,000,000+	40%	

SURTAX RATES FOR 1916.

Amount of net income.	Rate.	Amount of surtax on each rate.
A	B	C
$20,000	1%	$200
40,000	2%	400
60,000	3%	600
80,000	4%	800
100,000	5%	1,000
150,000	6%	3,000
200,000	7%	3,500
250,000	8%	4,000
300,000	9%	4,500
500,000	10%	20,000
750,000	11%	27,500
1,000,000	12%	30,000
1,500,000	13%	65,000
2,000,000	14%	70,000
2,000,000+	15%	

SURTAX RATES FOR 1913-15.

Amount of net income.	Rate.	Amount of surtax on each rate.
$20,000	1%	$200
40,000	2%	400
75,000	3%	750
100,000	4%	1,000
150,000	5%	2,500
250,000	6%	6,000
500,000	7%	12,500
500,000+	8%	

CALCULATION OF SURTAX AT 1918 RATES.

To compute the amount of surtax on any amount of net income in excess of $5,000:
First: Find in column A the largest sum which is less than the amount of the total net income subject to surtax at 1918 rates (Item 1, page 2, or Item 15, page 1, of the return).
Second: Find in column C the corresponding amount of total surtax.
Third: To the amount of surtax found as above add an amount computed as follows: Subtract from the net income the sum found in column A and multiply the remainder by the rate shown on the next line below in column B.
The sum of these two amounts is the total surtax due.

1. ITEM.	2. Example: Net income $12,000.	3. Computation of surtax on Item 15, page 1 of the return
1. Largest sum in column A which is less than the amount of the total net income	$12,000.00	$ 150,000..
2. Total surtax thereon shown in column C	100.00	$ 49,510.
3. Remainder of net income after subtracting Item 1, above	1,000.00	$ 2,350.
4. Surtax on this remainder at rate shown in column B on line below that from which Item 1 was taken	90.00	$ 1,316.
5. Total surtax due (sum of Items 2 and 4)	280.00	$ 50,826.

Item 5, column 3, should be entered as Item 30, page 1 of the return.

CALCULATION OF SURTAX AT PRIOR-YEAR RATES.

To calculate surtax at 1917 rates:
First: Enter on the first line of column 1, below, the amount of Item 15, page 1 of the return.
Second: Enter in column 2 either (a) the next larger amount shown in column A of the 1917 surtax table, or (b) the amount of Item 15, page 1 of the return, if less than such amount.
Third: Enter in column 3 the difference between the amounts entered in columns 1 and 2.
Fourth: Enter in column 4 the rate of tax shown in column B of the surtax table on the same line as the amount referred to in (a) of the second step.
Fifth: Enter in column 5 the product of figures in columns 3 and 4.
If the amount of Item 15 is greater than the amount in column A of the 1917 surtax table referred to in (a) of the second step, proceed as follows:
Sixth: Enter on the second line of column 1 the largest amount in column A of the surtax table which is smaller than Item 15.
Seventh: Enter in column 2 the amount of Item 15.
Eighth: Enter in column 3 the difference between the same sum entered in columns 1 and 2.
Ninth: Enter in column 4 the rate shown in column B of the surtax table on the line below that on which is shown the amount entered on the second line of column 1.
Tenth: Enter in column 5 the product of the figures in columns 3 and 4.
Eleventh: Enter on line 3, column 5, the sum of the amounts shown in column C of the surtax table opposite the percentages (if any) shown in column B between the percentages that were entered on lines 1 and 2 of column 4.

	1.	2.	3.	4. (Per cent.)	5.
1.	$ 182,350.	$ 160,850.	$ 8,500.	31%	$ 2,635.00
2.	160,850.	164,850.	4,000.	6%	240.00
3.	164,850.	167,350.	2,500.	4%	100.00
4.					
5.					
6.					
Total					$ 2,975.00

The total of column 5 should be entered as Item 27, page 1 of the return.

NOTE.—If you received stock dividends taxable at 1916 or at 1913-15 rates, calculate the tax in the same manner described for 1917 rates, using the appropriate surtax tables and the amounts of Items 14 and 28 for 1916 and 31 and 34 for 1913-15.

SPECIMEN RETURN SHOWING CALCULATION OF SURTAX

DELIVER OR SEND THIS RETURN TO COLLECTOR OF INTERNAL REVENUE ON OR BEFORE MARCH 15, 1919

DETACH AND KEEP WORK SHEET AND INSTRUCTION SHEET

Form 1040—UNITED STATES INTERNAL REVENUE SERVICE

INDIVIDUAL INCOME TAX RETURN

FOR NET INCOMES OF MORE THAN $5,000

FOR CALENDAR YEAR 1918

If the return is made for a part of the calendar year 1918, the date on which the period covered by the return ends must be plainly stated at the head of the return.

PRINT NAME AND ADDRESS PLAINLY BELOW

GEORGE BROWN
(Name)

100 Riverside Drive
(Street and number or Rural route)

New York City
(Post office and State)

CASH
CHECK
M. O.
CERT. of IND.

(DO NOT WRITE IN THIS SPACE)

Examined by

Audited by

FIRST PAYMENT

$

(Cashier's Stamp)

1. Did you make a return for 1917? Yes
2. If so, what address did you give on that return? 100 Riverside Drive New York City
3. To what Collector's office was it sent? (Give district or city and State.) District No. 2
4. Give number, if any, assigned to you for 1917, if it does not appear in address at head of return 4,144
5. Were you in 1918 married and living with wife (or husband)? Yes
6. If not, were you head of a family as defined in instructions under "Personal Exemption"?
7. How many dependent persons under 18 (or mentally or physically defective) received their chief support from you in 1918? One
8. If you claim any additional exemption on account of dependent persons other than your children, what was their relationship to you? Widowed Mother
9. Write "R" if this return shows income received or "A" if it shows income accrued A
10. Did your wife (or husband) or minor child make a separate return? No (If so, give name and address entered at head of that return.)

11. Enter below all **nontaxable income** received by (or accrued to) you during the year:

Class of Securities.	Principal.	Interest.	Class of Securities.	Principal.	Interest.	Salary, etc. (give source).	Amount.
Bonds of First Liberty Loan unconverted	$ 5,000.	$ 175.00	Obligations of States and Territorial, political subdivisions thereof, and the District of Columbia	$ 2,000.	$ 80.00		$
Other obligations of the U. S. issued before Sept. 1, 1917, and obligations of U. S. possessions	2,500.	75.00	Federal Farm Loan Bonds	1,500.	50.00		

12. State amount of **stock dividends** received by (or accrued to) you directly during the year, declared from earnings of domestic or resident corporations accumulated since February 28, 1913, and prior to January 1, 1918:

(a) Accumulated in 1917, $ 1,500.00 (b) Accumulated in 1918, $ 1,000.00 (c) Accumulated since February 28, 1913, and prior to January 1, 1918, $ 500.00

13. Enter in table below **interest on Liberty Bonds** and other obligations of the United States issued since September 1, 1917, received by (or accrued to) you during the year, and maximum amount of such obligations (par value) held at any one time from which such interest was derived (see instructions, page 2, under K(b)):

1. Class of Obligation.	Individual Holdings.		Shares of Holdings of Partnerships, Personal Service Corporations, and Estates and Trusts.		5. Total (Columns 2 and 4).	7. Maximum Exemption.	
	2. Amount of Interest.	3. Maximum Amount of Obligations.	4. Amount of Interest.	5. Maximum Amount of Obligations.			
(a) First Liberty Loan converted into Second Loan and Second Liberty Loan unconverted (interest received since January 1, 1918)	$ 100.00	$ 3,500.	$	$	$ 3,500.	$45,000 (See Note.)	In addition an exemption of $5,000 may be claimed as to any one of these classes or may be divided among them.
(b) First and Second Liberty Loans converted into Third Loan and Third Liberty Loan	1,150.00	24,500.			24,500.		
(c) First Liberty Loan converted into Fourth Loan	200.00	6,000			6,000	30,000	
(d) Fourth Liberty Loan	250.00	7,500	500.00	12,500	20,000	30,000	
(e) Other obligations issued since September 1, 1917	150.00	5,000			5,000	0	
(f) Totals	$ 1,850.00	$ 46,500	$ 500.00	$ 12,500	$ 59,000		

Note.—This exemption (maximum $45,000) is limited to one and one-half times the amount of bonds of the Fourth Liberty Loan originally subscribed for and still held. State here amount of bonds of the Fourth Liberty Loan originally subscribed for and still held $ 20,000

14. Enter in the table below **income from partnerships, personal service corporations, and estates and trusts:**

1. Name of Partnership, Personal Service Corporation, Estate, or Trust. (If Estate or Trust, Give Also Name of Fiduciary.)	2. Period (Enter 1918 or Date on Which Fiscal Year Enters).	3. Cash Distributed.	4. Stock Distributed.	5. Interest on Tax-Free Bonds (From Estates and Trusts Only).	6. Interest on Liberty Bonds, etc., Issued Since Sept. 1, 1917.	7. Other Income.	8. Total.
The Brown Co. (Personal Service Corp.)	1918	$ 10,000	$	$	$	$	$ 10,000
Smith & Brown (Partnership)	Aug. 31st		15,000			6,000	$ 21,000
(a) Totals taxable at 1918 rates (see instructions, page 2, under C)		Include in K(a), page 2. $ 10,000	Include in K(b), page 2. $ 10,000	Include in F, page 2. $	See instructions, page 2, under K(b).	Enter as C, page 2. $ 4,000 Enter as 20, below.	x x x x Enter as 17, below.
(b) Totals taxable at 1917 rates (see instructions, page 2, under C)		$	$ 5,000	x x x x	$	$ 2,000	$

(c) Amount of stock dividends (column 4) taxable at 1918 rates (enter as 29), $ 3,000 (d) Amount of stock dividends taxable at 1913-15 rates (enter as 23), $ 2,000

Total Net Income Subject to Surtax.			Total Net Income Subject to Normal Tax.			Calculation of Tax.	
15. Item I, page 2	$152,350	—	AT 1918 RATES.			33. Normal tax of 6% on amount of Item 29	$ 240.
16. Item 12 (a)	1,500	—	25. Net income shown on page 2, Item J		$ 130,000.	34. Normal tax of 12% on amount of Item 29	14,832
17. Item 14 (b), column 8	7,000	—	26. Less personal exemption		2,400	35. Normal tax of 4% on amount of Item 29	80
18. Total (Items 15, 16, and 17)	$160,850	—	27. Balance		$ 127,600.	36. Surtax at 1918 rates (see surtax table on page 1 of instructions)	50,826.
19. Item 12 (b)	1,000	—	28. Amount subject to tax at 4% (not over $4,000)		4,000.	37. Surtax at prior-year rates (see surtax table on page 1 of instructions)	2,975.
20. Item 14 (c)	3,000	—	29. Balance subject to tax at 12%		$ 123,600.	38. Total tax	$ 68,953
21. Total (Items 18, 19, and 20)	$164,850	—	AT 1917 RATES.			39. Tax paid at source (3% of amount of Item 7, page 2)	40.
22. Item 12 (c)	500	—	30. Amount of Item 14 (b), column 7	$ 2,000.		40. Income, war profits, and excess-profits taxes paid in 1918 to foreign countries and possessions of the U. S.	
23. Item 14 (d)	2,000	—	31. Balance of personal exemption not used above (Item 26 minus Item 25)			41. Balance of tax due (Item 38 minus Items 39 and 40)	$ 68,913.
24. Total net income (Items 21, 22, and 23)	$167,350	—	32. Balance subject to tax at 4%	$ 2,000.		42. Amount of tax paid on submission of return	$ 17,248.25

I swear (or affirm) that this return, including the accompanying schedules and statements (if any), has been examined by me and, to the best of my knowledge and belief, is a true and complete return in good faith, pursuant to the income tax law and regulations, of all taxable gains, profits, and income received by or accrued to me (or the person for whom this return is made) during the year 1918, and that all deductions entered or claimed herein are allowable by law.

(If return is made by agent, the reason therefor must be stated on this line)

Sworn to and subscribed before me this ..... day of ....., 1919.

(Signature of individual or agent)

(Signature of officer administering oath) (Title) (Address of individual or agent)

A. INCOME FROM BUSINESS OR PROFESSION.

1. Kind of business: WHOLESALE HARDWARE — 2. Business address: 59th St. & Broadway, N.Y.City

3. Total sales and income from business or professional services: $400,000.00

COST OF GOODS SOLD:		OTHER BUSINESS DEDUCTIONS:	
4. Labor	$ 100,000.	12. Salaries and wages not reported as "Labor" under "Cost of Goods Sold"	$ 50,000
5. Material and supplies	150,000.	13. Rent	25,000
6. Merchandise bought for sale		14. Interest on business indebtedness	5,000.
7. Other costs (submit schedule of principal items at foot of page or on separate sheet)	25,000.	15. Taxes on business and business property	2,500.
8. Plus inventories at beginning of year	50,000.	16. Repairs, wear and tear, obsolescence, depletion, and property losses (explain in table below)	10,000.
9. Total	$ 325,000.	17. Bad debts arising from sales	2,500.
10. Less inventories at end of year	75,000.	18. Other expenses (submit schedule of principal items at foot of page or on separate sheet)	55,000.
11. Net Cost of Goods Sold	$ 250,000.	19. Total Other Business Deductions	$150,000.

20. Net Cost of Goods Sold Plus Other Business Deductions: $ 400,000.

21. Net Income from Business or Profession: $ 100,000.

B. INCOME FROM SALARIES, WAGES, COMMISSIONS, BONUSES, DIRECTOR'S FEES, AND PENSIONS.

1. Occupation.	2. Name and Address of Employer.	3. Gross Income.	4. Deductions, if any.
GENERAL MANAGER	George Brown - 59th St. & Broadway, N.Y.C.	$ 10,000.	$ -----
VICE PRESIDENT	The Brown Co - 88 West 42nd Street, N.Y.C.	5,000.	-----
PARTNER	Smith & Brown - 368 Fifth Ave. N.Y.C.	2,500.	-----
Net Income from Salaries, etc. (total of column 3 minus total of column 4)		$ 17,500.	$	$ 17,500.

C. INCOME FROM PARTNERSHIPS, PERSONAL SERVICE CORPORATIONS, AND ESTATES AND TRUSTS (not including interest on tax-free covenant bonds received through fiduciaries, which should be included in Item F; dividends, which should be included in Item K(a); taxable interest on obligations of the U. S., which should be included in Item K(b), or income taxable at 1917 or prior-year rates—see table 16, page 1) $ 4,000.

D. PROFIT FROM SALE OF LAND, BUILDINGS, STOCKS, BONDS, AND OTHER PROPERTY.

1. Kind of Property.	2. Year Acquired.	3. Name and Address of Purchaser or Broker.	4. Sale Price.	5. Original Cost or Market Value March 1, 1913.	6. Cost of Subsequent Improvements, if any.	7. Depreciation Subsequently Sustained.	
A.B.C. Bonds	1912	Skinner & Co - - 10 Wall St. N.Y.C.	$ 10,000.	$ 9,000	$	$	
Brick Building	1915	1 Eight Ave. N.Y.C.	25,000.	20,000	2,000.	1,000.	
Net Profit from Sales (total of columns 4 and 7 minus total of columns 5 and 6)			$ 35,000	$ 29,000	$ 2,000.	$ 1,000	$ 5,000.

E. INCOME FROM RENTS AND ROYALTIES.

1. Kind of Property.	2. Name and Address of Tenant, Lessee, etc.	3. Amount of Rent and Royalties.	4. Repairs, Wear and Tear, Obsolescence, Depletion, and Property Losses.	5. Interest.	6. Taxes.	7. Other Expenses (Explain Below).	
Brick Building	Wm. Wilson. 1 Eight Ave. N.Y.C.	$ 3,000.	$ 400.	$ 600.	$ 400.	$ 100.	
Net Income from Rents and Royalties (total of column 3 minus total of columns 4, 5, 6, and 7)		$ 3,000.	$ 400.	$ 600.	$ 400.	$ 100.	$ 1,500.

F. INTEREST ON CORPORATION BONDS CONTAINING TAX-FREE COVENANT, ON WHICH A TAX OF 2% WAS PAID BY DEBTOR CORPORATION (including such interest received through fiduciaries) $ 2,000.

G. OTHER INCOME (not including dividends, or interest on obligations of the United States).

	1. Gross Income.	2. Deductions, if any.	
1. Interest on bonds, mortgages, and other obligations of domestic and resident corporations except as reported in Item F	$ 1,000.	$ -----	
2. Interest on bonds of foreign countries and corporations and dividends on stock of foreign corporations (per schedule herewith)	2,000.	-----	
3. Interest on bank deposits, mortgages, etc.	2,000.	-----	
4.			
5.			
Net Total (total of column 1 minus total of column 2)	$ 5,000.	$ -----	$ 5,000.

H. TOTAL NET INCOME FROM ABOVE SOURCES $ 135,000.

I. GENERAL DEDUCTIONS NOT INCLUDED ABOVE.

1. Interest paid or accrued	$ 500.	3. Losses by fire, storm, etc. (explain in table below)	$ 200.	5. Other deductions, if any (explain below)	$
2. Taxes paid or accrued	100.	4. Contributions (explain below)	4,200.	Total	$ 5,000.

J. Total net income on which normal tax is to be calculated at 1918 rates (H minus I) (enter as 25, page 1) $ 130,000

K(a). Dividends on stock of corporations organized or doing business in the United States (not including income from personal service corporations):
Received directly, $ 20,000; received through partnerships, personal service corporations, and fiduciaries, $; Total 20,000 $ 20,000

K(b). Taxable interest on bonds and other obligations of the United States issued after September 1, 1917 (see instructions, page 2) 2,350

L. Total net income subject to surtax at 1918 rates (if this amount is $5,000 or less, make your return on Form 1040A, unless you had income taxable at 1917 or prior-year rates) $ 132,350

ENTER IN THIS TABLE DETAILS CONCERNING REPAIRS, WEAR AND TEAR, PROPERTY LOSSES, ETC., CLAIMED AS DEDUCTIONS IN SCHEDULES A, E, AND I ABOVE.

1. Refer to "A," "E," or "I."	2. Kind of Property or Buildings, State also Material of which Constructed.	3. Year Acquired.	4. Cost or Present (or Market Value March 1, 1913).	5. Repairs (not Offset by Claims for Wear and Tear and Losses).	Wear and Tear, Obsolescence, and Depletion Charged Off. 6. Rate.	7. Amount Previous Years.	8. Amount this Year.	Losses not Compensated for by Insurance. 9. Cause of Loss.	10. Amount of Loss.
A	Wood Building	1915	$ 500,000.	$ 5,000.00	3%	$ 35,000.00	$ 10,000.00		$
E	Brick Building	1916	20,000.	100.00	2%	500.00	300.00		
A								Business Failures	2,500.00

EXPLANATION OF DEDUCTIONS claimed in Schedule A, lines 7 and 19; Schedule B, column 4; Schedule E, column 7; Schedule G, column 2; and Schedule I, items 4 and 5.

Schedule E - Column 7 Insurance $100.00

Schedule I - Colum 4 Red Cross $2,000 United War Drive $1,000
Liberty Loan Committee $ 1,200

for 1918, providing you place it on your books as such for that year.

QUESTION: As subscribers of THE IRON TRADE REVIEW *we will appreciate very much if you will compute our income tax for the year* 1918.

Invested capital prewar period.$221,727.27
Average profits prewar period 33,922.55
Invested capital for 1918.... 519,287.23
Net earnings for 1918..... 142,025.46

ANSWER: For methods of calculating your taxes on the basis of the above facts, we would refer you to our second article in THE IRON TRADE REVIEW issue of Jan. 30, 1919, as well as the issue of Feb. 13, 1919. The detailed operations for corporations are shown in those issues.

Superior Steel's Gross Sales $8,961,862 in 1918

With gross sales amounting to $8,961,862 in 1918, the Superior Steel Corp., Pittsburgh, shows a decrease from 1917 of $1,859,332. Net earnings for the year were $1,939,366 as compared with $2,784,475 in 1917. The surplus of $831,504, after all charges and federal taxes and preferred dividend deduction, was equivalent to $7.90 a share on 60,000 shares of common stock. This compares with the 1917 surplus of $967,363, equivalent to $9.96 a share on common. The comparative income account follows:

	1918	1917
Gross sales	$8,961,862	$10,821,194
Miscellaneous income	178,912	72,584
Gross income	$2,551,343	$3,488,062
Expenses, taxes, etc.	311,977	478,268
Plant depreciation	300,000	225,918
Net income	$1,939,366	$2,784,475
First preferred sinking fund	105,000	860,000
Second preferred sinking fund	60,000	25,833
Profits tax reserve	942,862	931,279
Balance	$831,504	$967,363
Dividends	300,475	530,332
Surplus	$31,029	$437,031
Previous surplus	466,926	29,895
Discount on preferred stock	3,079	.....
Surplus	$501,034	$466,926

In his remarks to the stockholders, President E. W. Harrison said:

"During the greater portion of the past year we were obliged to run our plant on either direct or indirect government business. Since the termination of the war, our energies have been bent toward returning to normal domestic business. This has been accomplished to a large extent in a shorter period than we anticipated, and while real normal conditions have not yet arrived, we feel that they are coming gradually, and the indications are such that the outlook for the future in our particular line is very bright."

During 1918 the company retired $105,000 of its first preferred and $60,000 of the second preferred stocks. Sales amounted to $9,038,742, representing 74,727 net tons of steel, at an average price per ton of $120.95.

Allis-Chalmers Net Gain Increases Over 1917

Before taxes, the net profit of the Allis-Chalmers Mfg. Co., Milwaukee, in 1918, registered a large gain over the preceding 12 months. For the year ended Dec. 31, 1918, the net profit was $9,754,748 as against $5,308,790 in 1917. A federal tax reserve of $4,549,000 and provision for special amortization of $579,882 brought the surplus down to $4,625,866. Unfilled orders on hand Dec. 31 totaled $23,154,000. The statement follows:

	1918	1917
Sales billed	$35,031,233	$26,129,317
Costs, etc.	23,339,430	19,144,107
Selling and gen. expense	2,220,167	1,906,264
Mfg. profits	$9,471,636	$5,078,946
Other inc.	283,112	229,844
Net profit	$9,754,748	$5,308,790
Federal tax, etc.	4,549,000	1,298,300
Special amortization	579,882	.....
Surplus	$4,625,866	$4,010,490

Has Best Year

With surplus earnings of $618,322, equal to $38.64 share on the $1,600,000 common stock outstanding, the Taylor-Wharton Iron & Steel Co., High Bridge, N. J., enjoyed in 1918 the most profitable year of its entire history. The previous record was established in 1917 when the surplus reached $408,813, equivalent to $25.55 a share. The balance sheet discloses net additions to property and plant during the year of $59,741. During the year the company's current assets increased by $1,176,000, while current liabilities increased by $637,000, indicating the strength of the financial position. In his statement to stockholders President Knox Taylor says that there is not lacking evidence that after-war conditions in industry are assuming satisfactory proportions. He is confident, he says, that the return of natural conditions in the iron and steel industry will mean profitable business for his company. The comparative income account follows:

	1918	1917
Profits	$1,637,830	$1,619,569
Interest	366,166	211,053
War taxes	240,000	410,000
Contingency reserve, etc.	350,000	458,362
Balance	781,663	540,154
Preferred dividends	163,341	131,341
Surplus	618,322	408,813

Steady Prices

Are Shown in Coal Tar Products Excepting Ammonium Sulphate

New York, March 11.—With the exception of sulphate of ammonia, all coal tar products remain fairly steady. In sulphate of ammonia, there has been no recent change in quotations, as far as small lots go, but there is a gradual weakening as production continues to far exceed demand. Domestic buying is dull. While numerous export inquiries are afloat, little foreign business is being placed.

Further good demand for benzol mixture as motor fuel continues to prevent, under the present restricted output, any accumulation of benzol, toluol or solvent naphtha. However, some business still is being done at slight concessions from the regular market of 20 to 25 cents per gallon for pure benzol; 25 to 35 cents, depending upon quality, for toluol, and 20 to 25 cents for solvent naphtha. Demand for pure benzol and toluol remains relatively small.

The increased percentage of business in naphthalin, noted recently, continues to be maintained, although total sales also are comparatively small. Buying at the present time includes both spot and contract sales on the basis of 8½ to 9½ cents per pound for flakes and 10½ to 11½ cents for balls. Activity in phenol is virtually nil, with price somewhere under 15 cents per pound.

Coke Oven By-Products

Spot	
Per Gallon at Producers' Plant	
Pure benzol	$0.20 to .25
Toluol	.25 to .35
Solvent naphtha	0.20 to .25
Per Pound at Producers' Plants	
Phenol	No market
Naphthalin, flake	$0.08½ to .09½
Naphthalin, balls	.10½ to .11½
Per 100 Pounds at Producers' Plants	
Sulphate of ammonia	$4.45 to 4.55
Contract	
Pure benzol	$0.20 to .25
Toluol	.25 to .35
Solvent naphtha	.20 to .25
Per Pound at Producers' Plant	
Phenol	No market
Naphthalin, flake	$0.08½ to .09½
Naphthalin, balls	.10½ to .11½
Per 100 Pounds Producers' Plants	
Sulphate of ammonia	nominal

The Union Steel Casting Co., Pittsburgh, has completed an addition to its No. 1 finishing department which will be used for cleaning and finishing castings.

Interest in Tool Trade is Divided

Attention Being Paid to Financial Arrangements to Substitute for Appropriations Which Failed to Pass Congress Before Adjournment Vies With Interest in Current Business—Miscellaneous Inquiries Numerous—Export Market Watched Keenly

DIVIDED interest prevails among sellers of tools and equipment. On the one hand disappointment is undisguised that congress failed to pass the $750,000,000 railroad appropriation bill before adjournment and no small amount of attention is being paid to efforts to finance the federal-controlled railroads in some other way so that needed equipment can be purchased. The outcome of Tuesday's meeting at Washington between Director General of Railroads Hines and a delegation of bankers and railroad executives is awaited with more or less anxiety. Even the most optimistic among machinery traders, however, feel that the heavy buying of equipment for railroads, which promised to develop this spring, now is indefinitely postponed. On the other hand, dealers' interest in their customers' demands perforce continues unabated, even though there is a slight lowering of the number of inquiries received and their size. Railroad buying is negligible. The Rock Island is asking for a few tools in Chicago. Pittsburgh and Cleveland dealers receive inquiries from the Pennsylvania lines west every day or so. This last road is affected perhaps more than any other by the lack of funds, since it had several million dollars' worth of improvements planned. In the east the Boston & Maine and the Baltimore & Ohio railroads have bought a few tools.

Many of the inquirers in the Chicago market become purchasers but in Cleveland and in Pittsburgh where miscellaneous inquiries are particularly heavy, many buyers have decided to await lower prices on tools. Expectation of lower prices on raw materials is holding up several large construction projects in Pittsburgh, which so far have appeared on paper only.

Automobile companies are placing orders in Cleveland, but further west they appear to be filled up. In Chicago most of the activity is contributed by agricultural implement manufacturers, tractor builders, etc.

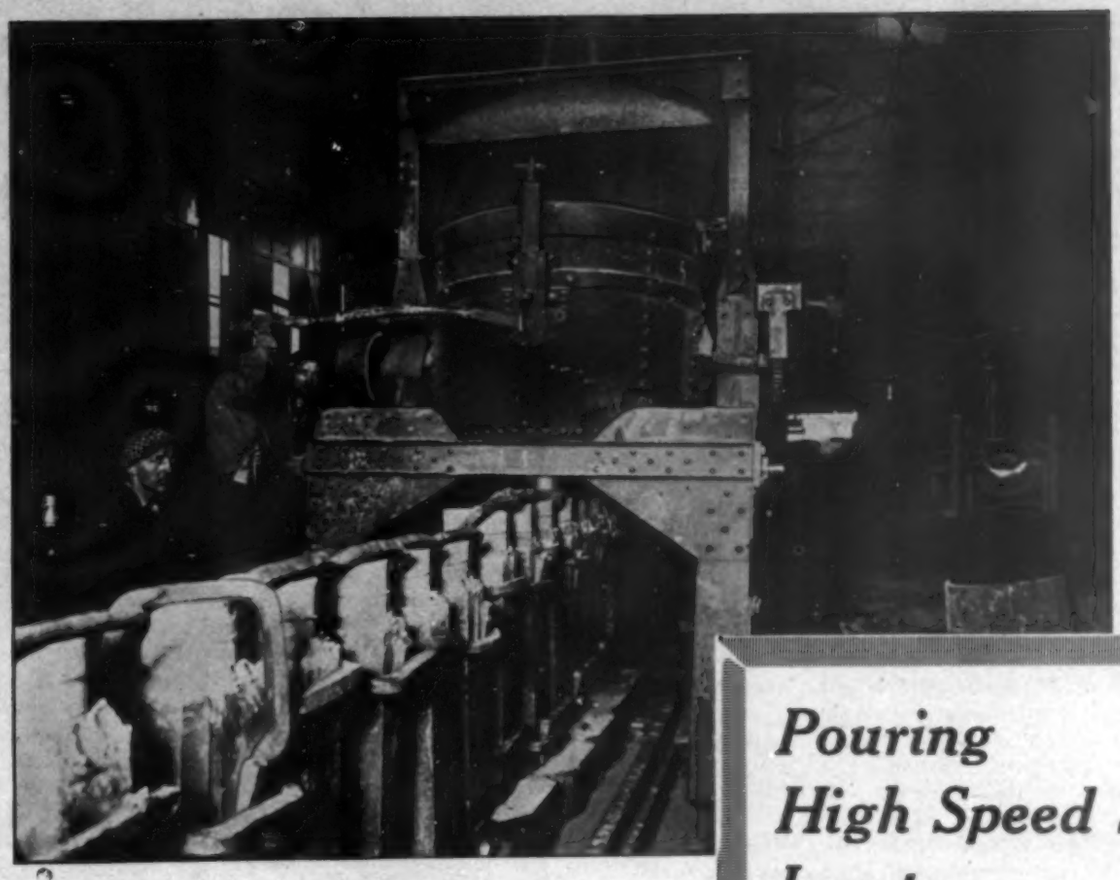
Developments in the export situation are being keenly watched. It seems that England's embargo against importing American tools effective March 1, does not apply to old and established lines of equipment where blanket licenses have been issued. This has encouraged the trade greatly in the east and several large orders were placed recently for English consumption. The French high commission continues active in inquiring for tools and in placing orders in New York and vicinity for shipment to France. Foreign demand, however, is not expected to attain its stride until peace terms are concluded. The matter of credits seems to be the determining factor in making sales abroad. It is thought that Belgium will be a big buyer if she can arrange another commercial acceptance credit.

The largest crane purchase reported in recent weeks was consummated recently in the east. The contract called for 20 of from 100 to 250 tons capacity for the naval ordnance plant at Charleston, W. Va. Failure on the part of congress to pass the naval appropriation bill carrying in excess of $800,000,000 has delayed several projects. One of the largest of these is a $400,000 machine shop at the Philadelphia navy yard. Another bill which was not passed in which the machine tool trade was interested was the sundry civil bill which provided over $600,000,000 for the Emergency Fleet corporation.

Tool Market Affected by Nonpassage of Legislation

PLANS now being formulated to rescue the railroads from the serious plight in which they were left by congress shares in the attention being given by the eastern machine tool trade of late to the export situation. The efforts being made to supply at least the greater portion of the $750,000,000 carried in the railroad appropriation bill until congress can again convene are being regarded with vital interest. While the situation still is nebulous, it is expected that important developments will arise from the meeting in Washington Tuesday between Walter D. Hines, director general of the railroads and a delegation of bankers and railroad executives. However successful the efforts, though, it is felt generally in the trade that the long expected buying on the part of the railroads has again been given a severe setback.

At present there are many important railroad projects pending due to lack of sufficient funds. The Pennsylvania railroad alone has had many million dollars' worth of improvements placed in abeyance, included in which are the large locomotive repair shops at Marietta, Pa. A number of machine tool lists of one description or another have been circulated only to be withdrawn later, and numerous crane inquiries have been in the market for weeks. Some projects have been placed in abeyance indefinitely as a result of the intrenchment policy of the railroad administration. It had been planned to spend approximately $500,000,000 on tracks, new buildings, bridges and other enterprises this year. Some buying is being done at this time for the account of the railroads, but the total volume is small. Recent purchases of this character include a few tools for the Boston & Maine railroad, and also several machines for the Baltimore & Ohio.



Pouring High Speed Steel Ingots

After the liquid steel has been poured off, the ladle is lifted by a crane to its position on one of our large, powerfully built carriages. These carriages travel, at the will of the operator, the entire lengths of ingot molds, filling, from a bottom opening, each ingot mold rapidly and without loss of metal. Central Pouring is thus assured.

"Consistently Uniform" is our motto—and it is absolutely and invariably maintained.

"LUDLUM" BRANDS:

Mohawk Extra
High Speed Steel

Pompton
Carbon Tool Steel

Albany
Alloy Tool Steel

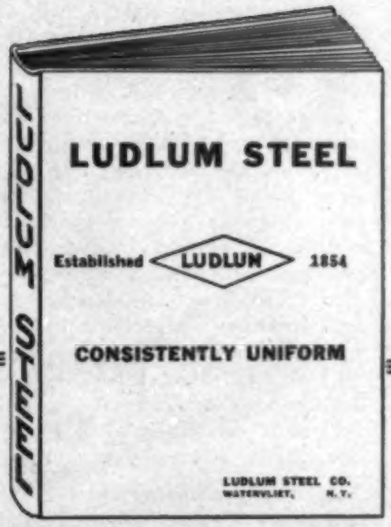
Oneida
Oil Hardening Tool Steel

Huron
Alloy Die Steel

Teton
Ball Bearing Steel

Seminole
"Fool Proof" Chisel Steel

Yuma
Chrome Magnet Steel



THIS LUDLUM-Text Book is a complete treatise on the various tool steels. It describes the correct method of forging, hardening, tempering, annealing. It contains accurate calculation tables and other valuable information.

Just ask for it and it's yours, free

LUDLUM STEEL COMPANY

General Office and Works

WATERVLIET, N. Y.

Branch Offices:

New York City Philadelphia Cambridge Cleveland Cincinnati Detroit Chicago Buffalo

The export situation continues to have its cheerful aspects. The action taken by England in granting certain reputable dealers in that country blanket licenses for importing machine tools is regarded as the most promising development of late; and during the past days several large orders have been placed in this country by England. Aside from some further buying by the French high commission, this has been the only export trading of consequence. The Foundation Co., Woolworth building, New York, is figuring on a shipbuilding contract with the French government, the yard to be erected in France, but negotiations as yet have not been completed. It had been reported that the Foundation company would build 174 steel ships but this rumor has been officially denied. It is further stated by the company that the negotiations now being conducted call for a much smaller number.

Despite the relative small volume of export business actually being placed, there are a number of sizable export inquiries before the trade. Due to the activities of middlemen, these inquiries appear more numerous than is the case. How soon buying of any volume will set in is problematical. It is understood that action by the Standard Oil Co. on approximately 70 machines for shipment to Roumania has been postponed for at least a couple of months. It is doubtful if inquiries in some instances will ever result in actual business; nevertheless, the steady increase in export demand is conducive to a much better sentiment. A number of interests believe, though, and their stand appears well founded, that foreign demand until peace is signed at least, will be spotted; in other words, demand for the next several weeks, or possibly few months, will be coming out for tools of special quality or design but not in any great volume for machine tools generally. However, until the haze of mystery which seems to have enveloped the export situation, owing to the many factors and ramifications at this time about which no definite understanding is available, has cleared, any opinion as to developments in the near future can be regarded as little else than sheer conjecture. Of interest to the trade at this time is the fact that Belgium is anxious to arrange another commercial acceptance credit, similar to the $50,000,000 credit recently negotiated with American bankers.

Domestic buying during the past week continues to be confined to small orders principally. The Oltmar Iron Works, Hoboken, N. J., has purchased a few additional tools. The Richard T. Green Co., Chelsea, Mass., is buying equipment for a drydock and repair plant. A few miscellaneous tools have been purchased by the H. H. Franklin Motor Co., Syracuse, N. Y. This company is understood to have recently purchased property adjoining its plants for additions, costing more than $300,000. New inquiries include a list of 20 or more machine tools for a northern New Jersey vocational school. The Montgomery Iron & Steel Co., Philadelphia, expects to be in the market shortly for some milling machines and other equipment, and also a number of cranes.

Failure of congress to pass the naval appropriation bill of more than $800,000,000 has delayed action on several important projects, including a $400,000 machine shop at the Philadelphia navy yard. Whether or not this will delay buying for the naval ordnance plant at Charleston, W. Va., is not clear. The failure to pass the sundry civil bill, providing $660,000,000 for carrying on the building program of the Emergency Fleet corporation, will also be felt in the machine tool trade.

Aside from 20 cranes, the majority of which range from 100 to 250 tons, for the naval ordnance plant at Charleston, W. Va., little large buying is in prospect in the eastern crane market. Some fairly good business is expected to develop in the Philadelphia district, however, the Montgomery Iron & Steel Co. planning to buy a number of electric cranes and the Tacony Steel Co. understood to be figuring on five. A few locomotive crane inquiries are out in the Philadelphia district, including one from the Richard De Cou Co. for one 40-ton crane. Westinghouse, Church, Kerr & Co., New York, are in the market for three 3-yard bucket-handling cranes, one to have a span of 60 feet and the other two of 77 feet, for a plant at Chicago Heights, Ill. The Chester Shipbuilding Co., Chester, Pa., desires to rent three 20-ton locomotive cranes.

Railroad Buying Indefinitely Postponed

DEALERS in machine tool equipment in Chicago feel that the failure of congress to appropriate the fund asked for railroads will postpone for many months the heavy buying which had been expected to come out this spring. Practically all railroad purchasing agents in this district have been preparing their lists in preparation for submitting them as soon as the railroad administration removed the hindrances. This operation now seems set forward a considerable time and the release must now wait until other means of financing have been worked out. The Rock Island road has inquired for half a dozen miscellaneous tools, but recent developments may delay this buying. Other roads are not in the market except for a few single tools. The usual fate of a quotation to railroads is that nothing further is heard of the business.

As a general proposition, inquiry for single tools is steady and of fair volume and a large proportion of the inquirers buy. Occasionally a prospective buyer decides that prices are too high and announces he will wait six months or more until a lower level is attained. Most activity in the market now comes from agricultural implement manufacturers, tractor builders and automobile accessory makers, with automobile manufacturers showing somewhat less activity.

One factor which is bringing in some business is the fact that many persons who have desired to enter the manufacturing field and were unable to do so during the war are now taking advantage of the removal of restrictions and are equipping plants to take care of their new lines. The American Wire Fabrics Co., Chicago, has bought a site on which it will build a plant consisting of several units. The Monarch Tractor Co., Chicago, will build a warehouse and machine shop addition. The Wisconsin Machinery & Mfg. Co., Milwaukee, will increase its facilities following a large addition to its capitalization. The Hub City Iron Works, Aberdeen, S. Dak., will build a foundry addition. The Terre Haute, Indianapolis & Eastern Traction Co., Terre Haute, Ind., will build car shops. The Frost Gear & Forge Co., Jackson, Mich., will build an addition.

Miscellaneous Business Highly Satisfactory

WHILE no feature of the Cleveland machine tool market stands out more than another, dealers are enjoying satisfactory business. This is miscellaneous in character. A slight slackening of the inquiry rate is noticeable but a keen demand exists that tools on order be shipped promptly.

Automobile makers continue to figure largely as purchasers. Several now are figuring and expect to close shortly. As fast as the Chandler Motor Car Co., Cleveland, is released from governmental work, it is equipping itself for regular production. It is understood that this company will place orders in the near future for the machinery for the plant it will build for the Cleveland Automobile Co., recently incorporated by Chandler in-

ROLLING MILL JIM IN PEACE

Say Fellows:

You know there is nothing new about this League of Nations. We have had it right here in the mill for the past twenty years, with a pretty good batting average, too.—Slav, Russ, Hun, Bohunk, Guinea, Dinge, Harp and Yit, all playing the same game and playing it on the square. So I guess as we have got along with it here, it will go pretty well anywhere else.

So Long,

Rolling Mill Jim.—

Hubbard Steel Foundry Co.

EAST CHICAGO, IND.

All Kinds of Iron and Steel Rolls and Steel Castings.

terests. The Olds Motor Works, Lansing, Mich., is inquiring for multiple punches, punch presses, shears, and other tools. Expansions and improvements planned for it by the General Motors Corp., are expected to take the major part of the corporation's 1919 appropriation.

Dealers in Cleveland as well as elsewhere feel that railroad buying is indefinitely postponed, due to the fact that certain legislation was not passed before congress adjourned. Some single tools are sought by different roads and inquiries are received from time to time from the Pennsylvania lines west, but orders are few and far between.

Inquiries and orders from miscellaneous industries come in in pleasing volume, although no particularly large lists are current. The Parker Appliance Co., Cleveland, wants milling machines, cutters, etc. The Home Specialty Co., East 152nd street, is to erect another plant to make electric washing machines and will require some machinery. The Erie Specialty Co., Erie, Pa., is asking for prices on lathes, grinders, etc. It is reported that this company is to make Fordson tractors. Some credence is placed in the report that the Hamilton, O., project of the Fordson Tractor Co., will go ahead soon, although it now is thought that that site will be used for a plant to produce $250 automobiles instead of tractors. The Automatic Products Co., Detroit, on March 10 placed orders for $4300 worth of automatic screw machines. It also is looking for ½ and 1-inch bolt cutters. The National Screw Products Co., Cleveland, which recently bought a carload of machinery is looking for some heat-treating equipment. The Federal Equipment Co., Pittsburgh, and the Westinghouse Electric & Mfg. Co., East Pittsburgh, were recent purchasers in the Cleveland market. The Cleveland Twist Drill Co., Cleveland, is receiving quotations on swaging machines. The U. S. Air Compressor Co., Cleveland, desires to obtain some 24-inch turret lathes. The Detroit Hoist & Machine Co., Detroit, wants a double end punch and shear. The Erie Bolt & Nut Co., Erie, Pa., wants an alligator shear. The Gordon Propeller & Mfg. Co., Cleveland, recently purchased a keyseater and the Lamson & Sessions Co., that city, is understood to have closed on a No. 4-B Becker milling machine. The Torbensen Axle Co., Cleveland, still is looking for a 36-inch triple-geared lathe. The Guide Motor Lamp Mfg. Co., Cleveland, is endeavoring to obtain a 24 to 36-inch short bed lathe for general tool room work. The U. S. Tool Co., Cleveland, has been purchasing machinery and is understood to have closed on all of its requirements at this time. The United States Automatic Co., Amherst, O., is erecting an addition and $40,000 worth of machinery is to be purchased. The Peerless Bread Machinery Co., Sidney, O., is buying equipment to increase its bread-making machinery output. The Mather Spring Co., Toledo, O., is erecting a machine shop. The S. P. Mfg. Co., 872 East Seventy-second street, Cleveland, is advertising for two lathes.

Inquiries Plentiful In Pittsburgh, Orders Few

PLENTY of inquiries are coming out for machinery and tools in the Pittsburgh district, but accompanying orders are few and small. The Pennsylvania railroad, lines west, is putting out inquiries for shop equipment daily, but in view of the failure of the last congress to pass the railroad revolving appropriation and the fact that this and all other roads under federal direction have no funds for equipment purchases, makes the inquiries of uncertain value. Several big construction projects which will need equipment are in the hands of Pittsburgh engineering companies, but it is plainly stated that these plants will remain strictly on paper until steel prices come down to a more nearly normal level. Fairly large offerings of used machinery at attractive prices tend to check purchases of new goods. Undoubtedly the rolling mill research laboratory to be installed under the auspices of Pittsburgh district steel manufacturers at the Carnegie Institute of Technology, will call for the purchase of considerable machinery. It is estimated that it will cost $150,000 to fit out the laboratory.

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Factories

VINALHAVEN, ME.—The Vinalhaven Light & Power Co. has been incorporated with $50,000 capital by C. G. Chilles, H. W. Field and A. S. Littlefield, Rockland, Me.

WATERVILLE, ME.—The Kennebec Gas & Fuel Co., Francis Colton, general manager, will erect a plant next fall.

LACONIA, N. H.—Lockwood Greene & Co., Boston, engineers, are drawing plans for a 4-story, 40 x 200-foot factory for Scott & Williams, New York, maker of knitting machinery.

ATTLEBORO, MASS.—The Horton-Angell Co. recently was incorporated with $215,000 capital, by C. L. Watson, W. A. Cunningham and Thomas E. Manning to manufacture metal products.

BOSTON.—John H. McGlynn, Philadelphia, has bought property at Jeffries Point, East Boston, Mass., for a company that is planning to build dry docks.

BOSTON.—The Broad Gage Iron Works, Inc., has been incorporated with $10,000 capital, by Michael S. Morgan, Charlestown, Mass., John J. McDevitt and Thomas E. Murphy.

BOSTON.—The Timson Monoplane Co. has been incorporated with $100,000 capital by William B. Lawrence, Fred A. Steele, Medford, Mass., and William G. Burns.

BOSTON.—The Hodges Co., Inc., has been incorporated to make factory and mill supplies with $3000 capital by Irving B. Moore, Harry D. Hodges, Sunapee, N. H., and Paul R. Hodges.

BOSTON.—The Murray & Tregurtha Corp. has been incorporated to make boats and aircraft, motors, etc., with $1,000,000 capital, by Samuel D. Messing, J. W. Trey and M. Sumner Coggan.

BOSTON.—The Ludwig Machine Co., Inc., has been incorporated with $10,000 capital, by Thomas W. Ludwig, Watertown, Mass., Jacob Brandly and J. S. Graham.

BOSTON.—The Federal Radiator Co. has been incorporated with $16,000 capital, by Isadore Feldman, Benjamin Bernson, Somerville, Mass. and Morris Mednick.

CHELSEA, MASS.—Plans are being drawn for a plant for the Winnisimmet Ship Yards, Inc.

CHELSEA, MASS.—The contract for a 1-story foundry has been awarded by the Griffin Wheel Co.

PITTSFIELD, MASS.—The Berkshire Sheet Metal Works recently was damaged by fire.

SPRINGFIELD, MASS.—The Caldwell Tool Co. has been incorporated with $25,000 capital, by Harlan P. Small, Edward C. Taylor and M. O. Munson.

SPRINGFIELD, MASS.—The P. V. W. Automatic Machinery Corp. has been incorporated and has taken over the screw machine lines from the Fitchburg Machine Works, Fitchburg, Mass. C. E. Van Norman is president of the company and C. J. Wetzel is

FARRELL-CHEEK

The Metal

is the basis of steel casting quality. If the metal is not (1) the proper mixture for its particular purpose and (2) absolutely correct in temperature when it is poured, failure of the casting is bound to result sooner or later.

We know steel. Experience has taught us exactly what composition is best for every steel casting use, and how to secure the right pouring temperature to a fraction of a degree.

Our equipment and men enable us to make the most of this experience and knowledge.

From laboratory to cupola, from cupola to converter and from thence to the moulds, the metal that goes into every Farrell-Cheek casting is RIGHT. The experience of users of our castings PROVES it.

We hope to have the pleasure of serving you soon. *Immediate Delivery.*

Farrell-Cheek Steel Foundry Co.

"Makers of Steel Castings that are a little better than the next best"

Sandusky, Ohio

MEMBER OF
NEW YORK, U.S.A.

secretary. Plans are reported to be under consideration for the erection of a large plant here.

WORCESTER, MASS.—The Worcester Wire Die Co. has been organized by Fred H. Brigham and others.

WORCESTER, MASS.—The Woodland Machine Co. has been organized by Earl T. Knowlton and Bernard McKenna.

WORCESTER, MASS.—The Morgan Spring Co. has let a contract for the erection of a 1-story, 41 x 73-foot rolling mill.

WORCESTER, MASS.—C. O. Johnson & Sons, makers of steel wire let the contract for a 1-story, 40 x 256-foot factory.

WORCESTER, MASS.—The Park Mfg. Co. has been incorporated to make metal goods with $25,000 capital by Thomas Crabtree, J. Verner Critchley, E. Crabtree and M. P. Critchley. It has taken over the plant of the J. V. Critchley Mfg. Co.

PROVIDENCE, R. I.—The Providence Body Co. will start work shortly on a 1-story, 60 x 300-foot plant.

PROVIDENCE, R. I.—The J. W. Bishop Co. has the contract to build a 1-story, 90 x 100-foot power house and a 200-foot brick stack for the Revere Rubber Co.

WOONSOCKET, R. I.—The Coon Harvester Co. has been incorporated to make harvesting machinery with $100,000 capital, by Arthur J. Coon, Harold P. Salisbury and Clifford A. Kingsley.

PLAINFIELD, CONN.—Landers, Frary & Clark, New Britain, Conn., will build a 4-story, 60 x 162-foot factory and a 1-story, 42 x 42-foot boiler house.

ROCKY HILL, CONN.—A general contract for the construction of a $40,000 foundry has been awarded by the Connecticut Foundry Co.

THOMASTON, CONN.—The Thomaston Mfg. Co., manufacturer of wire specialties, plans to build a 1-story, 40 x 80-foot plant.

Along the Atlantic Coast

BROOKLYN, N. Y.—A $20,000 machine shop will be erected here by the Cameron Machine Co., 61 Popular street.

BROOKLYN, N. Y.—The S. & S. Corrugated Paper Machinery Co. has been incorporated with $15,000 capital by E. and M. Steve and E. F. Stern, 580 St. Nicholas avenue.

BROOKLYN, N. Y.—The Cole-Duncan Boiler Works, 15 Clay street, has acquired property at Borden and Clay streets, and is reported planning to move to the new location.

BROOKLYN, N. Y.—The S. & S. Corrugated Paper Machinery Co. has been incorporated with $15,000 capital, by E. and M. Steve and E. F. Stern, 580 St. Nicholas avenue.

BROOKLYN, N. Y.—The Deline Engineering Co., Inc., has been incorporated to make marine, foundry and factory supplies with $50,000 capital, by S. V. Coles, E. H. and O. A. Deline, 171 Clymer street.

BUFFALO.—The Harvey Rim & Wheel Co., Inc., has been incorporated with $10,000,000 capital, by W. B. Allison, G. E. and L. B. Harvey.

BUFFALO.—J. H. Williams & Co., 400 Vulcan street, manufacturers of drop forgings, are taking bids for the erection of a 1-story addition, 80 x 400 feet.

FULTON, N. Y.—The J. A. Bort Mfg. Corp. has been incorporated with $100,000 capital to make machinery and mechanics' supplies, by O. Moore, E. M. and J. A. Bort, of Fulton.

JOHNSON CITY, N. Y.—The Central Flatiron Mfg. Co. is reported planning the erection of a plant addition.

LITTLE VALLEY, N. Y.—The Cattaraugus Cutlery Co. will build an addition.

LOCKPORT, N. Y.—The Lockport Hydraulic Co. will build an electric power plant.

LONG ISLAND CITY, N. Y.—The plant of the Russell Foundry & Machine Works, 67-73 Ninth street, recently was damaged by fire.

MARINERS HARBOR, N. Y.—The Johnson Shipyard Co. is having plans drawn for a machine shop, 50 x 100 feet.

NEW YORK.—The Milliken Bros. Mfg. Co., Woolworth building, plans to make alterations to its steel fabricating plant at a cost of $27,000.

NEW YORK.—Murmack, Inc., has been incorporated with $10,000 capital to build electrical machinery, by J. J. Murphy, P. E. Kyle and J. Mackie, 59 West Sixty-fifth street.

NEW YORK.—Lease Bros. Motor Co. has been incorporated with $50,000 capital, to make tools, motors, etc., by I. Levine, R. and R. M. Lease, 340 West Forty-ninth street.

NEW YORK.—The Greeley Iron Works, Inc., has been incorporated with $5000 capital, by H. T. Nashman, H. Sherris and S. F. Oppenheim, 265 West Fifty-fourth street.

NEW YORK.—The Wire & Steel Products Co., Inc., has been incorporated with $10,000 capital, by S. J. Ornston, I. Emmanuel and J. T. Goldberg, 277 Broadway.

NEW YORK.—The Liberty Aero Service Corp. has been incorporated with $50,000 capital to manufacture airplanes, etc., by E. Bowers, 1035 Tiffany street and others.

NEW YORK.—The Fisher Courant Co. has been incorporated to manufacture auto parts, etc., with $25,000 capital, by A. and L. Fisher and E. Courant, 121 West Ninetieth street.

NEW YORK.—Waterbury-Carey has been incorporated with $50,000 capital, to make tractors and harvesting machinery, by W. Swain, J. M. Keyser and R. Eble, 60 Wall street.

NEW YORK.—A. Bataille & Co., Inc., has been incorporated to make metal grillwork, etc., with $50,000 capital, by J. H. Meyer, J. H. Brown and A. Bataille, 564 Hudson street.

NEW YORK.—The Trigg Accounting Machine Corp. has been incorporated with $10,000 capital, by W. J. Houldcroft, O. Spitzer and T. A. Trigg, 488 Coney Island avenue.

NEW YORK.—The Wadel Fuel Products Corp. has been incorporated with $21,000 capital, by G. H. Porter, R. Van Schaik and F. J. Linke, 120 Liberty street.

NEW YORK.—It is reported that the Eastern Potash Co., 120 Broadway, will erect a $1,000,000 plant near New Brunswick, N. J. Twenty acres have been acquired as a site.

NEW YORK.—Egleston Bros. & Co., dealers in iron and steel products, 106 Front street, purchased 60,000 square feet in Long Island City as a site for a future plant.

NEW YORK.—Plans have been completed by the Buick Auto Repair Co., 244 West Forty-ninth street, for the construction of a $400,000 garage and machine shop, 1-story, 100 x 200 feet.

NEW YORK.—The Clinton Dry Docks, Inc., has been incorporated with $2,000,000 capital, by C. R. Delmage, H. R. Dawson and E. Vanderwater, 177 Montague street, Brooklyn.

NEW YORK.—The Ocean Ship Chandler Co., Ltd., has been incorporated with $200,000 capital, by H. P. Molloy, F. K. Hennessy and E. P. McLaughlin, 25 Broad street.

NEW YORK.—Adams, Lovell, Burlingham, have been incorporated as shipbuilding, marine and mechanical engineers, with $101,000 capital, by T. D. Adams, R. L. Lovell and W. Burlingham, 90 West street.

NEW YORK.—The Aircraft Material & Equipment Corp. has been incorporated with $100,000 capital, by A. Johns, J. J. O'Conner and F. W. Bain, 55 Liberty street.

NEW YORK.—The Benedict Products Corp. has been incorporated with $13,000 active capital, to make mechanical toys, by J. A. Nickerson, F. C. Smith and C. J. R. Davis, 1 West 103rd street.

NEW YORK. — Adams, Lovell, Burlingham, shipbuilding, marine and mechanical engineers, have been incorporated with $101,000 capital, by T. D. Adams, R. L. Lovell and W. Burlingham, 90 West street.

NEW YORK.—The Aircraft Material & Equipment Corp. has been incorporated with $100,000 capital, by A. Johns, J. J. Connor, and F. W. Bain, 55 Liberty street.

NEW YORK.—The Ariston Bone Co., Inc., has been incorporated with $50,000 capital, to manufacture covered steel and whalebone articles, by W. H. Jeffers, M. V. Abraham and W. E. Winn, 138 Broadway.

NEW YORK.—The Harder Furnace & Engineering Corp. has been incorporated with $300,000 capital, by M. E. Clark, 276 Winthrop street, Brooklyn, and W. L. Harder and M. C. Monroe, 165 Broadway, New York.

ROCHESTER, N. Y.—The Atlantic Stamping Co. is having plans drawn for the erection of a plant addition.

ROCHESTER, N. Y.—The Yawman & Erbe Mfg. Co., steel office equipment, will erect a $25,000 addition.

ROCHESTER, N. Y.—The Liberty Bread Slicer Co., Inc., has been incorporated with $20,000 capital, to manufacture bread slicing machines, by F. M. Dale, H. T. Lockman and W. C. Knapp.

SYRACUSE, N. Y.—Additions will be erected at the plant of the H. H. Franklin Motor Co.

SYRACUSE, N. Y.—Onondaga Metal Bed Mfg. Co. will remove its present plant to a 5-story building recently acquired on East Water street.

SYRACUSE, N. Y.—The Meachem Gear Corp. has been incorporated with $300,000 capital, by T. W. Meachem, formerly of the New Process Gear Corp., Syracuse, and others. The company will build a plant here.

UTICA, N. Y.—The Utica Steam & Mohawk Valley Cotton Co. will build two pump houses.

WATERTOWN, N. Y.—This city has preliminary plans drawn for a municipal electric lighting plant, estimated to cost $300,000.

WOODHAVEN, N. Y.—The American Die & Tool Works, 182 Center street, New York, is having plans drawn for a plant, 50 x 90 feet, estimated to cost $25,000.

BEAVER FALLS, PA.—The Beaver County Light Co. has arranged to make improvements to its plants in this vicinity.

BETHLEHEM, PA.—An expenditure of $150,000

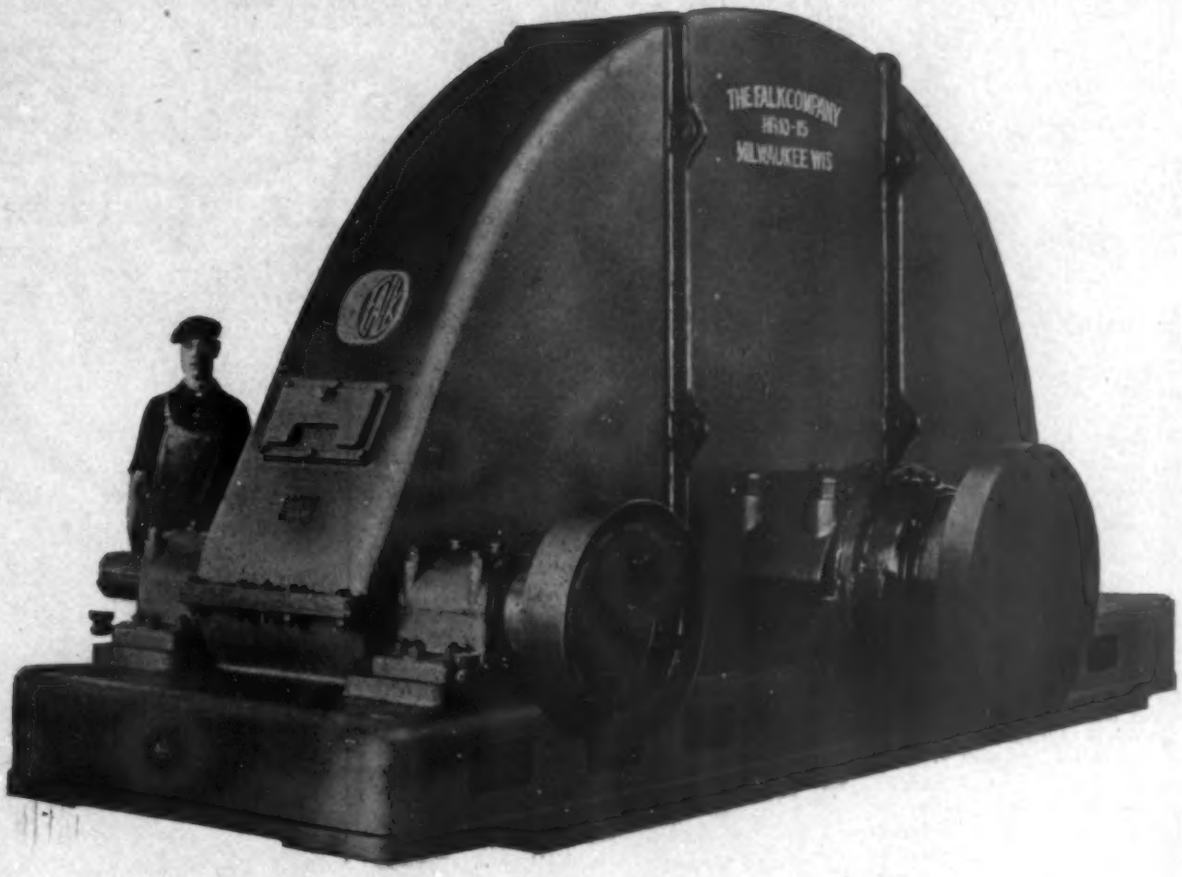
Government Inquiries

BIDS on the following equipment are desired by the navy department, bureau of supplies and accounts.

Machine tools, electric drills, engine lathe, milling and grinding machine, 3855, Charleston, April 1.
Two turret machines, 3861, Norfolk and Philadelphia, April 11.
Cold saw machine, 7842½, Mare Island, March 14.
Two pipe threaders and cutters, 7848½, South Charleston, March 21.

Schedule numbers, dates of opening and places of delivery follow the specifications of the tools.

Herringbone Gears Units



Large steel mills have accorded WUEST Herringbone Gears universal recognition for their electric drives, and heavy shaft line drives.

They have found that these gears are absolutely dependable and eliminate all shock, noise and vibration. They reduce upkeep and consumption of power.

Steel Castings

From 1 Pound to 100,000 Pounds

WRITE FOR FALK LITERATURE

The Falk Company, Milwaukee, Wis.

REPRESENTATIVES:

PITTSBURGH—W. O. Beyer, 1024 Park Building
NEW YORK—M. P. Fillingham, 50 Church Street
SAN FRANCISCO—F. W. Grimwood, Rialto Building
DENVER, COLO.—Denver Engineering Works
WILKES-BARRE, PENNA.—Vulcan Iron Works

on new buildings and equipment, is reported being considered by the Bethlehem Fabricator Co.

CLARENDON, PA.—The Tiona Refining Co. will rebuild its plant here.

ELLWOOD CITY, PA.—This city has decided on a bond issue of $85,000, part of which will be used for a garbage disposal plant.

ERIE, PA.—The Lake Erie Welding & Spring Co., 1116 Sassafrass street, will build a plant on West Twelfth street to cost $15,000. Milton Smith is president.

FRANKLIN, PA.—The Producers' Supply Co., manufacturer of tanks, engines, etc., plans the construction of a 1-story addition, 60 x 135 feet, according to a report.

GIRARD, PA.—Work will be started shortly on the erection of a 1-story, 50 x 100-foot plant for the Girard Model Works, manufacturer of wire products.

GROVE CITY, PA.—This city proposes to build a larger lighting plant.

HARRISBURG, PA.—The Lalance & Grosjean Mfg. Co. contemplates building a machine and blacksmith shop.

HERNDON, PA.—The Tiona Refining Co. has let the contract for a plant.

JOHNSTOWN, PA.—The National Radiator Co. will start work shortly rebuilding the portion of its works recently damaged by fire.

MANON, PA.—The plant of the Nassau Steel Co. recently was damaged by fire, the loss being estimated at $50,000. The Nassau Steel Co. came here from Jersey City, N. J., and its first shipment of cold rolled steel was made from its plant here last week.

MEADVILLE, PA.—The city council plans to build an electric light plant.

MERCER, PA.—The plant of the Elliott Blair Steel Co. recently was damaged by fire. The loss was estimated at $75,000.

NEW CASTLE, PA.—The Pennsylvania Iron & Steel Co. recently was incorporated to manufacture iron and steel products by A. H. Simpson, John J. Rook and Edward A. Attridge. The company which is capitalized at $100,000, will locate at Ellwood, Pa.

OIL CITY, PA.—The J. Reid Gas Engine Co. will rebuild its plant recently damaged by fire.

PHILADELPHIA.—Walter H. Finney will erect a 1-story metal shop addition, 32 x 40 and 40 x 80 feet.

PHILADELPHIA.—M. M. Sladkim has purchased a factory building at Tenth and Buttonwood streets, for the manufacture of bicycles.

PHILADELPHIA.—Henry Disston & Sons, Inc., manufacturers of saws, etc., is reported contemplating the erection of a 2-story, 18 x 40-foot addition.

PHILADELPHIA.—Bids are being taken by the John E. Sjostrom Co., 1715-19 North Tenth street, for the erection of a 3-story, 68 x 102-foot addition.

PHILADELPHIA.—R. C. Ballinger & Co. have been awarded a contract by Powers, Weightman & Rosengarten Co., manufacturing chemist, for the construction of a $30,000 plant addition.

PITTSBURGH.—The Duquesne Light Co. has let a contract for a machine shop addition, 25 x 90 feet.

PITTSBURGH.—The Ever Ready Iron Co. has been incorporated in Delaware with $100,000 capital, by Nathlun Nahlen, A. M. Groves and George L. Hall.

SLATINGTON, PA.—A building recently erected at the plant of the Slatington Rolling Mills, Walnut street, has been damaged by fire.

WARREN, PA.—Extensive improvements are being made to the plant of the Hultberg-Johansen Tool Co.

WEST MIDDLESEX, PA.—The Standard Slag Co. is reported planning construction of a slag crushing plant.

WINDBER, PA.—The Berwind-White Coal Mining Co., Commercial Trust building, Philadelphia, will spend $2,000,000 for improvements to its coal mining plants.

NEWARK, N. J.—The New Process Steel Hardening Co., 207 Market street, has been organized by Albert Schrafft, 346 Belmont avenue and others.

NEWARK, N. J.—It is reported that the Simmons Co., manufacturer of beds, springs, etc., plans the erection of several new factory buildings.

NEWARK, N. J.—Plans are being prepared by J. E. Mergott Co., manufacturer of metal goods, for the erection of a building.

NEWARK, N. J.—Hay Foundry & Iron Works, Plum Point Lane, will make alterations to its brick power house.

NEWARK, N. J.—The Upson-Walton Co., 462 Riverside avenue, manufacturer of wire rope, has filed plans for the erection of a 1-story galvanizing shop, 35 x 67 feet.

NEWARK, N. J.—The Mechanical Engraving & Perfection Tool Co., 320 Market street, has been organized by Harry Tepp, 444 South Eighteenth street, Morris Schwartz, 710 South Tenth street and others.

Central States Activities

CLEVELAND.—Plans are being drawn for the erection of a plant at Sidney, O., for the Peerless Bread Machinery Co.

CLEVELAND.—The Oster Mfg. Co., East Sixty-first street, plans a machine shop addition, 20 x 30 feet.

CLEVELAND.—The Lake Superior Iron Ore Co. recently was incorporated with $100,000 capital, by E. C. Wolfe, Harry L. Deibel, 921 Engineers building.

CLEVELAND.—The Cleveland Scissors Co. recently was incorporated with $10,000 capital, by Samuel H. Katz, 320 Williamson building, and others.

CLEVELAND.—The Dual Axle Co. has been incorporated with $100,000 capital, by Attorney J. C. Reasner, 227 Society for Savings building, and others.

CLEVELAND.—The Home Specialty Co. will build a plant, 80 x 100 feet, on East 152nd street. The company, which manufactures electric washing machines, will be in the market for some machinery.

CLEVELAND.—The Sterling Spring Co. will erect a plant addition, 1-story, 100 x 150 feet, estimated to cost $30,000. The Sam W. Emerson Co., 1900 Euclid avenue, has the general contract.

CLEVELAND.—The United States Tool Co., 3160 West 106th street, recently increased its capital from $200,000 to $300,000 and has placed orders for new equipment. The company does not plan to enlarge its plant at the present time but may in the future.

CLEVELAND.—The Cuyahoga Galvanizing & Mfg. Co., 1280 East Fifty-ninth street, recently increased its capital from $20,000 to $50,000, and contemplates the erection of a large plant addition. As yet plans have not been made.

CLEVELAND.—The Parker Appliance Co. recently increased its capital from $125,000 to $300,000 and is in the market for machinery, including several milling machines. The company plans to lease larger quarters and in the future will erect a new plant.

CLEVELAND.—The International Iron & Metal Co., scrap dealers, has been incorporated with $500,000 capital. Correspondence is being handled through Attorney A. E. Bernsteen, 441 Society for Savings building.

CLEVELAND.—The Drake Process Machinery Co., 1255 West Fourth street, has purchased a plant at Quincy avenue and East 105th street, and plans to erect an addition. The company has increased its capital from $400,000 to $800,000 to care for this improvement. Walter H. Drake is president of the company.

CLEVELAND.—The Pierce Plating Corp. has leased 8000 square feet in a building at Marquette street and Hamilton avenue and will do a general nickel plating business. It is stated that the company in the future may erect a plant of its own. J. N. Pierce is president.

CLEVELAND.—The Jones Gear Co., Guardian building, has secured a site for a plant, and plans to start construction shortly. The company will manufacture gears, etc. It recently was incorporated with $800,000 capital. Frank Jones is president and general manager.

CLEVELAND.—The plant of the Anderson Electric Car Co. in the future will be devoted exclusively to the manufacture of industrial trucks and motors, while the Detroit plant will be applied to body building. Both plants will be enlarged, according to a report.

CLEVELAND.—A report to the effect the M. & M. Concrete Machinery Co., 821 Engineers building, plans to build a machine shop has been denied, by

Business Changes

SINCE March 1, the address of the Standard Parts Co., Cleveland, has been, corner of Eleventh street and Walnut avenue, between Euclid and Superior. Because it is the principal tenant, the new structure has been named the Standard Parts building.

* * *

The business and plant of the Anderson Mfg. Co., Elyria, O., have been taken over by the Colson Co. It will be operated under the Colson management but under the name of the Anderson Tool Co.

* * *

The Spranger Wire Wheel Co., Detroit, has changed its name to the Detroit Wire Wheel Corp.

* * *

The name of the Weber Iron Works, 6816 Union avenue, Cleveland, has been changed to the A. H. Marty Iron Works. A. H. Marty has been sole owner since the death of Jacob Weber, whose interest he purchased at that time.

* * *

Frank D. Chase, Inc., industrial engineer, has removed its office March 1 from the Peoples Gas building, Chicago, to 645 North Michigan boulevard. Inability to obtain sufficient room in the former quarters caused the change.

* * *

The name of J. E. Bolles Iron & Wire Works, Detroit, has been changed to the Mansfield Steel Corp.

* * *

The Hess Steel Corp., Baltimore, has established a branch office in the Kresge building, Detroit, in charge of George B. Norcross.

The Gas Producer Bulletin is Ready for Distribution

Our new twenty-two page bulletin giving complete data concerning the Hughes Mechanical Gas Producer has just been received from the printer. It contains much valuable engineering information—including many tables and several curves.

The coupon below is for your convenience in sending for a copy.

The Wellman-Seaver-Morgan Company
Cleveland, Ohio

Date .....

The Wellman-Seaver-Morgan Co.
Cleveland, Ohio.

Kindly send me your bulletin on the Hughes Mechanical Gas Producer as advertised in The Iron Trade Review.

Name .....

Company .....

Address .....

David McIntyre, president. Mr. McIntyre further stated the company may consider building a structure some time in the future.

FORT ATKINSON, WIS.—The James Mfg. Co. contemplates the erection of an iron foundry.

GREEN BAY, WIS.—The Conradson Machine Tool Co. has placed a contract with H. J. Selmer for an erecting shop, 64 x 224 feet to be equipped with 10-ton cranes. A contract was also let for a machine shop, 128 x 198 feet and a power house, 40 x 50 feet.

KEWAUNEE, WIS.—The Wisconsin Shipbuilding & Navigation Co. plans to establish a steel shipbuilding plant here.

MADISON, WIS.—The Bark River Bridge & Culvert Co., manufacturer of corrugated metal culverts, will build a shop, 40 x 80 feet.

MENASHA, WIS.—The United States Tractor Co., Chicago, is reported negotiating with the Commercial Club of Menasha, with a view to locating its plant here. The company plans to spend $50,000 in a new plant and equipment.

MILWAUKEE.—The Steyer Steel Casting Co. has acquired five lots adjoining its plant for future extensions. No definite plans have been made.

MILWAUKEE.—A factory and warehouse addition, costing about $200,000, will be erected by the National Enameling & Stamping Co.

MILWAUKEE.—Contracts have been awarded by the Milwaukee Dairy Supply Co., manufacturer of dairy machinery and equipment, for a machine shop addition, 80 x 120 feet.

MILWAUKEE.—The Wisconsin Machinery & Mfg. Co., manufacturer of rowboat motors, etc., increased its capital from $50,000 to $100,000 and will increase its facilities. Louis E. Vogel is general manager.

WATERTOWN, WIS.—The Monarch Tractor Co., Chicago, is reported planning an addition to its machine shop and warehouse. W. N. Smith is president.

DEARBORN, MICH. — The Detroit Edison Co., David Whitney building, has awarded a contract for the erection of a turbine room power house addition.

DETROIT.—The Detroit Copper & Brass Rolling Mills, is reported planning the erection of a casting plant.

DETROIT.—The Charles Bohn Foundry Co., 733 Hart avenue, is taking bids for a foundry, 168 x 240 feet.

DETROIT.—The Hudson Motor Car Co. is reported to have authorized the expenditure of $1,000,000 for equipment.

DETROIT.—The Holley Carburetor Co., 145 East Willis avenue, is having plans prepared for a plant, 60 x 224 feet and 40 x 94 feet.

DETROIT.—Plans for expansion have been completed by the stockholders of the J. E. Bolles Iron & Wire Works, East Milwaukee avenue and Hastings street. The company in the future will be known as the Mansfield Steel Corp. J. D. Mansfield is president and general manager.

ECORSE, MICH.—The D. J. Ryan Foundry Co. is reported to be planning a plant addition.

JACKSON, MICH.—The Frost Gear & Forge Co. has increased its capital from $350,000 to $750,000 and will build an addition, 75 x 150 feet.

MARINE CITY, MICH.—Fred Servel recently purchased a plant site from S. C. McLouth and plans to construct a foundry, 50 x 100 feet.

PONTIAC, MICH.—The Wilson Foundry & Machine Co., C. B. Wilson, president, will build an addition, 100 x 800 feet.

PORT HURON, MICH.—Fire recently damaged the South Park plant of the Holmes Foundry Co.

CHICAGO.—The Victor Mfg. & Gasket Co. is reported planning a plant. A. G. Alschuler, 28 East Jackson boulevard, is architect.

CHICAGO.—The American Steel Spring Co., 2337 Keystone avenue, has started work on a plant, 100 x 200 feet, estimated to cost $75,000.

EAST MOLINE, ILL.—The Monitor Drill Co. plans the construction of a plant at an estimated cost of $50,000.

MOLINE, ILL.—The Moline Forging & Mfg. Co., Forty-first and Third avenues, is having plans prepared for a heating plant, 1-story, 40 x 100 feet.

ROCK ISLAND, ILL.—The Rock Island Mfg. Co., First street and Fourteenth avenue, is having plans prepared for the erection of a plant addition, 50 x 90 feet, estimated to cost $10,000.

FT. WAYNE, IND.—The Wayne Oil Tank & Pump Co. plans to erect a new tank shop, 150 x 280 feet and to make other improvements to its plant.

INDIANAPOLIS.—The Super-Engine Mfg. Co., capitalized at $50,000, has been chartered by Frank and Elmer Wood and William H. Bettcher.

NOBLESVILLE, IND. — The Noblesville Iron & Metal Co. has been incorporated with $3000 capital, by Louis N. Joseph, H. L. Craig and Pinsky Fishman.

LOUISVILLE, KY.—The Grainger & Co. has been incorporated with $200,000 capital, to operate machine shops, etc., by Charles F. Grainger, A. B. Crowe and others.

Throughout the West

BENSON, MINN.—This city contemplates the erection of an electric lighting plant at a cost of $30,000.

MINNEAPOLIS.—The Allan Stoker Furnace Co., 705 Lumber Exchange, has let a contract for a machine shop, 42 x 120 feet.

SLAYTON, MINN.—The Slayton Power Co., Inc., is reported to be planning the erection of a power plant.

CUYUNA, MINN.—The erection of a concentration plant by the Northern Minnesota Ore Co. has been reported.

MAQUOKETA, IOWA.—This city plans the erection of an electric light plant at a cost of $65,000. Bonds have been voted.

LITTLE ROCK ARK.—The Western Steel Construction Co., incorporated in South Dakota, has filed notice it will engage in business in this state.

ABILENE, TEX.—The Gulf Well Machinery Co. will build a plant at an estimated cost of $250,000.

TULSA, OKLA.—The B. & C. Machine & Foundry Co. has been incorporated with $100,000 capital, by W. P. Cunningham, V. L. Hudson and B .C. Conner.

TULSA, OKLA.—A charter has been granted the Monarch Machine Co., which was incorporated by T. O. Kerr, Charles E. Fitzgerald and W. O. Dickson. The organizers are looking for a plant site and plan to erect a plant immediately upon securing one.

OLATHE, KANS.—The Triangle Machine Co. will occupy a plant here. The firm is composed of A. M. Harris, A. C. McGee and J. J. Allen.

HOOPER, NEBR.—Fire recently damaged the light plant of the Nebraska Light & Power Co. The loss was estimated at $15,000.

ABERDEEN, S. DAK.—The Hub City Iron Works, A. T. Green, president, 228 First avenue, will close bids soon for a foundry addition.

BRIGHTON, COLO.—The National Beet Harvester Co. plans the construction of a plant, which will include a foundry, at an estimated cost of $30,000.

DENVER, COLO.—The Jackson Compressor Co., 235 South Cherokee street, plans the erection of a plant for the manufacture of steel balls.

DENVER, COLO.—The Denver Rock Drill Mfg. Co. is erecting a foundry, equipped with modern core ovens, traveling cranes, molding machines, etc. The plant will be equipped with a 1-ton, 3-phase electric furnace.

CENTRALIA, WASH.—The Mathews Machine Shop is to be enlarged.

SEATTLE.—The Pacific Coast Grinding & Machine Co. is building a plant here at a cost of $500,000.

Business in Canada

ANYOX, B. C.—Fire at the Granby Consolidated Ore Co.'s plant here caused a loss to ore bins, tracks and smelters, estimated at $50,000.

VANCOUVER, B. C.—The Mainland Engineering Co. contemplates the erection of a new plant on George street, which will include a foundry.

CORNWALL, ONT.—Hy. Williams has the general contract for alterations to the power plant of the Toronto Paper Co.

GUELPH, ONT.—The board of directors of the International Malleable Iron Co. recently decided to build a new plant, 3-story, 60 x 160 feet, which will be used for the manufacture of pipe fittings.

GUELPH, ONT.—The building on Suffolk street, which was formerly occupied by Libby, McNeal & Libby Co., has been taken over by the Lang Machinery Co., which is incorporated with $100,000 capital. New machinery and equipment will be installed.

KINCARDINE, ONT.—The town council plans to remodel the municipal electric light plant. J. H. Scougall is city clerk.

KINGSTON, ONT.—The city council will make improvements and additions to its waterworks plant costing $500,000. W. W. Sands is city clerk.

LONDON, ONT.—The plant of the London Mfg. & Machine Co. has been taken over by Beatty Bros. and will be operated as a pump factory.

OVERBROOK, ONT.—The Canadian National Railways, 1 Toronto street, Toronto, will build car shops here. A. F. Stewart, Toronto, is engineer.

SARNIA, ONT.—The Romeo Foundry Co., Port Huron, Mich., is reported planning the construction of a foundry here at a cost of $150,000. L. G. Blunt is manager.

TIMMINS, ONT.—The town council will build a waterworks plant at an estimated cost of $118,000. H. E. Montgomery is city clerk.

TORONTO, ONT.—The Thermos Heating Systems, Ltd., has been incorporated to make boilers, stoves, etc., with $1,000,000 capital, by Frank Regan, 72 Queen street west, John Callahan and Edward Murphy.

TORONTO, ONT.—The Ferro Alloys Iron & Coke Co., Ltd., has been incorporated to manufacture iron, metals, etc., with $100,000 capital, by Henry H. Davis, Room 25, 10 Adelaide street east; Edward H. Brower, 160 Huron street and Lawrence A. Landriau.

WINDSOR, ONT.—Bowlby & Gluns, Ltd., have been incorporated to manufacture motor vehicles, etc., with $40,000 capital, by Andrew D. Bowlby, Richard H. Gluns, Sandwich, Ont., and others.

New Trade Publications

STEEL WIRE.—A 60-page price list and catalog, containing illustrations, price lists and other data of wire, nails, wire products, staples, etc., manufactured by the Wickwire Steel Co., Buffalo, is being distributed by that company. Besides prices the booklet gives specifications, etc., of the various products manufactured by the company.

CLAM BUCKETS.—A bulletin in which clam-shell buckets are described and illustrated has recently been issued by the Lakewood Engineering Co., Cleveland. Many illustrations showing the buckets at work, as well as several line drawings are given. Several pages are devoted to general data giving overall dimensions, capacities, etc. Illustrations of small cars and construction equipment manufactured by this company also are included.

ELECTRIC DRILLS.—A circular describing electric drills has recently been issued by the Independent Pneumatic Tool Co., Chicago. These drills are adapted for a variety of purposes such as drilling and reaming holes in general steel work wherever current is available. It is pointed out that it is impossible to stall the drill when working within its capacity. Several illustrations are included showing various types of drills for different purposes.

MILL BEARINGS.—The Hyatt Roller Bearing Co., New York, recently published bulletin No. 1815, in which bearings for steel mill equipment are described and illustrated. The booklet shows some typical designs for the application of bearings manufactured by the company, to steel mill equipment, such as plate mills, roller tables, charging cars, etc., and gives designating numbers, complete dimensions and all load and speed data for steel-mill bearings.

SPECIAL STEELS.—A catalog recently issued by the Colonial Steel Co., Pittsburgh, describes and illustrates the manufacture of tool steels, alloy steels and other special steels. The booklet contains valuable data, giving a number of tables, such as the melting points of metals, heats and colors for tool steels, flash and fire tests of various oils, etc. Classification and specification lists of the various specials are also given. The booklet will be of interest and value.

ELECTRIC FURNACES.—The Greene Electric Furnace Co., Seattle, has issued a 4-page leaflet in which the company's electric furnaces are described and illustrated. These furnaces are built with melting capacities ranging from 1200 pounds per turn upward. The leaflet contains a table showing the cost of melting and a summary of a patented slag melting process is given. One page is devoted to a description and diagram of a rolling cylinder type of furnace.

PLANERS.—The Cleveland Planer Co., Cleveland, is circulating an attractive, 32-page booklet, in which open side planers are described and illustrated. The mechanisms of these planers are readily accessible. All gears and shafts in the drive are removed from the sides, except the bull gear which lifts out through an opening in the top of the planer bed. These machines can be widened to plane several inches more than standard. They are built in sizes ranging from 30 x 30 inches with an 8-foot bed, to 72 x 72 inches with a 16-foot bed. The smallest machine weighs 15,000 pounds; the largest 75,000 pounds. The booklet contains tables showing the sizes, etc., of the various machines.

STEAM ENGINE.—A high-speed piston-valve steam engine, manufactured by the Ingersoll-Rand Co., New York, is described and illustrated in a 12-page bulletin recently published by that company. This engine is of the horizontal center-crank type and the balanced piston steam valve with which it is equipped, permits the use of high steam pressures and superheated steam. The engine is enclosed but is easily accessible and occupies little floor space. Cross-sectional illustrations showing the machine in detail are presented in the booklet.

MAGNESIUM.—The Shawinigan Electro-Metals Co., Ltd., Montreal, Que., has issued a 34-page booklet describing the uses of magnesium. The booklet contains a treatise on foundry practice in the use of magnesium, as well as treatises in its use with aluminum, copper, brass, bronze, nickel and other metals. The physical and chemical properties of the mineral are gone into and its chemical uses described. One part of the booklet is devoted to alloys of magnesium, and some interesting data are given.

ELECTRIC WELDING.—An interesting booklet covering the repair of the German ships has recently been issued by the Wilson Welder & Metals Co., Inc., New York. It describes how electric welding was resorted to in the emergency to get the damaged interned German vessels into commission as soon as possible. It is pointed out that a year of time and $20,000,000 was saved. Numerous illustrations are included which how some of the vessels repaired as well as many of the welding details. The company's welding apparatus is also illustrated and described.

OHIO MILLING MACHINES AND GRINDERS.—Presented by the Oesterlein Machine Co., Cincinnati, this handsomely bound catalog shows this company's line of plain and universal milling machines, grinders, attachments, etc. Full descriptions of all of the tools are given, and one page is devoted to suggestions for the operation and care of milling machines and another to hints on tool room grinding. Four pages are given over to illustrations showing manipulations in grinding. The catalog's foreword carries an invitation to visitors to inspect the company's plant and products when in Cincinnati.

PLATE CASTORS.—The Edward F. Terry Mfg. Co., New York, has published a 4-page bulletin, in which it describes and illustrates castor beds. The wheels and castors manufactured by this company are equipped with radial roller and ball thrust bearings of heavy design. The cast iron floor plates are provided with a checkered surface to afford a good foothold, and the castors can be removed from their sockets whenever desired. A castor bed is suitable for service as a feeder for punches, shears and other plate working machines. The leaflet contains a number of excellent drawings of the castors and their parts.

DRAWING TABLES.—The Economy Drawing Table & Mfg. Co., Adrian, Mich., has issued a booklet describing its drawing tables, filing cases, etc., for engineers, architects, contractors, manufacturers and others who employ the services of draftsmen. Several types of tables are illustrated and described. It is pointed out that the conveniences of a drawing table will enable the workman to turn out more work per day and that proper provision is made for accommodating the numerous tools used in the average drafting room. The latter part of the booklet is devoted to general specifications and construction details.

SHIP CASTINGS.—A catalog devoted to gray iron ship castings has just been issued by the Central Foundry Co., New York. Mooring fixtures and general castings are described and illustrated. These include air extractors, bitts, bollards, chocks, cleats, davit steps, fairleaders, mooring ports, mooring rings, chain pipes, hawse pipes, bilge and ballast flanged pipes, pipe flanges, hawser reels, coal scuttles, deck scuttles, sheaves and housings for timberchains and windlasses. It is pointed out that the constant changes being made in design necessitate many varieties of ship castings due to lack of standardization.

CRANES.—The Milwaukee Electric Crane & Mfg. Co., Milwaukee, recently published an attractive, 28-page booklet, describing and illustrating electric cranes manufactured by the company. All parts of these cranes are readily accessible and bearings are self-oiling. Bridge end trucks of structural steel are fitted with cast steel brackets, so that the load is evenly divided. The trolley of these cranes is of strong construction and the girt, connecting the two trolley sides, is of a strength designed to preserve the alignment between the trolley sides and to carry the upper rope sheaves. The booklet is well illustrated and contains a partial list of users of this type of crane.

OXY-ACETYLENE WELDING.—The Air Reduction Sales Co., New York, is circulating a booklet, containing a short course in oxy-acetylene welding which was prepared by Alfred S. Kinsey, professor of shop practice, Stevens Institute of Technology, Hoboken, N. J. The course consists of 13 periods or lessons, in which the welding of the various metals by this method is discussed. The course is divided into 3-hour periods, ½ of which time is devoted to lecturing on the subject and the remainder in the actual demonstration of the oxy-acetylene torches. The booklet contains a number of detailed drawings of the torches. The booklet was prepared following a number of requests from college instructors.

PLANERS.—The Liberty Machine Tool Co., Hamilton, O., has issued a pamphlet describing its planers. The component parts of the machine are described and several illustrations are included which show the gearing in the bed, shifting mechanism and driving pulleys, feed arrangement, power device for elevating and lowering the cross rail and the side heads. It is pointed out that the bed extends to the floor and that design eliminates the use of legs. This design insures a firm foundation. The running gear is placed inside the bed and is easily accessible from the top. It is pointed out that the belt shifting mechanism is designed to shift the belts quickly with minimum noise, caused by slippage as the platen takes the cutting and reverse strokes. The housings of this tool are of the box type and extend to the floor to insure rigidity. The machine is provided with a safety lock which secures the shifting mechanism, thus preventing accidental starting of the platen.

LOCOMOTIVE CRANES.—In a 96-page profusely illustrated catalog, the Brown Hoisting Machinery Co., Cleveland, treats exhaustively of its locomotive cranes. The many uses of these cranes are fully and graphically set forth by action photographs. Some of these uses include loose material, heavy excavating work, handling of castings, structural material handling, heavy sheets, plates, etc., manipulating pile drives or shovel dippers, shunting cars about the storage yard and terminal hoisting and unloading. The mechanical features are treated in detail and fully illustrated. Dock installations, among which is the one at the port at Cherbourg, France, with 18 raised-pier type, and a number of 4-wheel standard types are shown. Special wharf-type cranes spanning four railroad tracks were installed by this company in American terminals in France to aid the handling of miscellaneous materials for the army. These are described. The extensive use of locomotive cranes in shipbuilding is indicated by a number of illustrations, and numerous foreign installations throughout the world are shown. The catalog is one of the most complete which has been issued covering the entire field of locomotive cranes.

Iron and Steel Prices

Corrected to Tuesday Noon

Iron Ore

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$6.65
Mesabi Bessemer, 55 iron	6.40
Old range non-Bess., 51½ iron	5.90
Mesabi non-Bess., 51½ iron	5.75

Warehouse Prices

Steel bars, Chicago	3.97c
Steel bars, Cleveland	3.87c to 4.00c
Steel bars, Detroit	3.93c
Steel bars, Philadelphia	3.95c
Steel bars, New York	3.97c
Steel bars, St. Louis	4.04c
Steel bars, Cincinnati	3.93c
Steel bars, St. Paul	4.195c
Steel bars, Buffalo	3.916c
Iron bars, Buffalo	4.70c
Iron bars, Chicago	4.77c
Iron bars, Detroit	3.93c
Iron bars, St. Louis	4.04c
Iron bars, Cincinnati	3.93c
Iron bars, Philadelphia	4.30c
Iron bars, New York	4.57c
Shapes, Chicago	4.07c
Shapes, Detroit	4.03c
Shapes, St. Louis	4.14c
Shapes, St. Paul	4.295c
Shapes, New York	4.07c
Shapes, Cleveland	4.00c
Shapes, Philadelphia	4.05c
Shapes, Buffalo	4.015c
Shapes, Cincinnati	4.03c
Plates, Buffalo	4.215c
Plates, Chicago	4.27c
Plates, Detroit	4.23c
Plates, St. Louis	4.34c
Plates, St. Paul	4.495c
Plates, New York	4.27c
Plates, Cleveland	4.17c
Plates, Philadelphia	4.25c
Plates, Cincinnati	4.23c
No. 10 blue anl. sheets, Chicago	5.17c
No. 10 blue anl. sheets, Cleveland	5.00c
No. 10 blue anl., Buffalo	5.165c
No. 10 blue anl. sheets, St. L.	5.24c
No. 10 blue anl. sheets, Cincinnati	5.13c
No. 10 blue anl. sheets, St. Paul	5.395c
No. 10 blue anl. sheets, Detroit	5.13c
No. 28 black sheets, Chicago	6.22c
No. 28 black sheets, Cleveland	6.00c
No. 28 black sheets, Cincinnati	6.28c
No. 28 black, Detroit	6.28c
No. 28 black sheets, St. L.	6.29c
No. 28 black sheets, St. Paul	6.445c
No. 28 black Buffalo	6.165c
No. 28 galv. sheets, Chicago	7.57c
No. 28 galv. sheets, Cleveland	7.35c
No. 28 galv. sheets, Cincinnati	7.53c
No. 28 galvanized, Detroit	7.53c
No. 28 galv. sheets, St. L.	7.64c
No. 28 galv. sheets, Buffalo	7.515c

Iron and Steel Scrap

(Prices in Gross Tons)

STEEL WORKS USE

Bundled sheets, Cincinnati	$ 9.00 to 9.50
Bundled sheets, Pittsburgh	11.00 to 12.00
Bundled sheets, Cleveland	9.00 to 10.00
Bundled sheets, Buffalo	11.50 to 12.00
Bundled sheets, eastern Pa.	12.50 to 13.50
Boiler plate, cut, No. 1, Chicago	11.00 to 12.00
Boiler plate, cut, No. 1, St. Louis	10.00 to 10.50
Frogs, switches, guards, St. Louis	14.00 to 14.50
Frogs, switches, guards, Chicago	15.00 to 15.50
Heavy melting steel, Pittsburgh	14.50 to 15.00
Heavy melting steel, Buffalo	12.00
Heavy melting steel, Chicago	15.00 to 15.50
Heavy melting steel, Cleveland	14.50 to 15.00
Heavy melting steel, Cincinnati	13.50 to 14.00
Heavy melting steel, east. Pa.	13.50 to 14.50
Heavy melting steel, N. Y. (Deal.)	11.00 to 12.00
Heavy melting steel, St. L.	13.75 to 14.25
Heavy melting steel, Birmingham	12.00 to 13.00
Baled sheets, Cleveland	13.50 to 14.00
Baled sheets, Pittsburgh	13.00 to 13.50
Baled sheets, Chicago	12.00 to 12.50
Knuckles, couplers, Chicago	17.00 to 17.50
Knuckles, couplers, St. Louis	14.50 to 15.00
Low phos. steel, Buffalo	19.00 to 20.00
Low phos. steel, Pittsburgh	23.00 to 24.00
Low phos. crops, eastern Pa.	20.00
Low phos. guaranteed E. Pa.	20.00
Shoveling steel, Chicago	14.50 to 15.50
Shoveling steel, St. Louis	13.50 to 14.00
Steel rails, short, Cleveland	17.50 to 18.00
Steel rails, short, Chicago	16.50 to 17.00
Steel rails, short, St. Louis	14.00 to 14.50
Steel rails, old, Birmingham	12.00 to 13.00
Stove plate, Chicago	17.75 to 18.25
Stove plate, Cincinnati	12.00 to 12.50
Stove plate, St. Louis	15.00 to 15.50
Stove plate, N. J. pts. (Dealers')	17.50 to 18.00
Stove plate, Birmingham	13.00 to 14.00
Stove plate, Buffalo	17.00 to 18.00
Stove plate, eastern Pa.	18.00 to 20.00
Stove plate, Cleveland	16.00 to 17.00
Stove plate, Pittsburgh	15.00 to 16.00
Heavy breakable cast, Pbgh.	14.50 to 15.50

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.40
Newark, N. J.	4.80
Boston	5.30
Philadelphia	4.40
Pittsburgh	1.40
St. Louis	4.60
Minneapolis, St. Paul	5.70
Buffalo to:	
Albany, N. Y.	$1.75
New England (rail)	3.90
New York and Brooklyn (rail)	3.90
Virginia furnaces to:	
Philadelphia	$4.10
New England	4.70
Brooklyn, Jersey City, Newark	4.40
Birmingham, Ala., to:	
Boston	$3.00
Cincinnati	3.60
Chicago	5.00
Cleveland	5.00
Louisville, Ky.	3.30
Minneapolis, St. Paul	7.30
New York	7.70
Philadelphia	6.50
Pittsburgh	5.70
Savannah, Ga.	3.40
St. Louis	4.25
Chicago to:	
Des Moines	$3.50
Minneapolis, St. Paul	2.50
Milwaukee	.60
Moline, Ill.	1.40
Omaha	4.50
St. Louis	1.90
Ironton and Jackson, O., to:	
Chicago	$3.80
Cincinnati	1.30
Cleveland	2.40
Detroit	2.60
Indianapolis	2.30
Minneapolis, St. Paul	6.70

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	27.0 cents
Philadelphia	24.5 cents
Boston	30.0 cents
Buffalo	21.5 cents
Baltimore	23.0 cents
Cleveland	17.0 cents
Cincinnati	23.0 cents
Chicago	27.0 cents
Detroit	23.0 cents
Minneapolis and St. Paul	49.5 cents
Denver	$1.09
St. Louis	33.5 cents
New Orleans	38.5 cents
Birmingham	57.5 cents
Pacific coast (all rail)	$1.26
Pacific coast (tin plate)	1.26

IRON MILL USE

Busheling, No. 1, Cleveland	14.00 to 14.50
Busheling, No. 1, Buffalo	13.00 to 14.00
Busheling, No. 1, Pittsburgh	15.00 to 15.50
Busheling, No. 1, Cincinnati	14.50 to 15.00
Busheling, No. 1, Chicago	15.00 to 15.50
Busheling, No. 2, Chicago	11.00 to 12.00
Busheling No. 1, St. Louis	14.50 to 15.00
Cast borings, New York (Dealers')	10.00
Cast borings, eastern Pa.	13.00 to 14.00
Cast borings, Buffalo	8.00 to 10.00
Cast borings, Cleveland	10.00 to 10.50
Cast borings, Cincinnati	7.50 to 8.00
Cast borings, Pittsburgh	10.50 to 11.00
Cast borings, Birmingham	6.50 to 7.50
Cast borings, Chicago	9.00 to 10.00
Cast borings, St. Louis	6.00 to 6.50
City wrought, long N. Y. (Deal'r)	15.00 to 16.00
Cut forge, Chicago	16.00 to 16.50
Forge No. 1, eastern Pa.	12.50 to 13.50
Forge flashings, large, Cleveland	8.50 to 9.00
Forge flashings, small, Cleveland	12.75 to 13.25
Grate bars, Buffalo	21.00 to 22.00
Grate bars, Cleveland	16.00 to 17.00
Grate bars, N. J. pts. (Dealers)	17.50 to 18.00
Iron axles, Pittsburgh	26.00 to 27.00
Iron axles, Cincinnati	22.50 to 23.00
Iron axles, Cleveland	25.00 to 26.00
Iron axles, Chicago	31.50 to 32.00
Iron axles, eastern Pa.	nominal
Iron axles, St. Louis	24.00 to 24.50
Iron axles, Buffalo	23.00 to 24.00
Iron rails, Chicago	21.00 to 21.50
Iron rails, Buffalo	21.00 to 22.00
Iron rails, Cincinnati	21.00 to 22.00
Iron rails, St. Louis	20.00 to 20.50
Iron rails, Cleveland	23.00 to 24.00
Machine turnings, Cincinnati	7.50 to 8.00
Machine turnings, Cleveland	7.25 to 7.75
Machine turnings, Buffalo	8.00 to 10.00
Machine turnings, N. Y. (Dealers')	8.00
Machine turnings, Pittsburgh	9.00 to 10.00
Machine turnings, east. Pa.	11.00 to 12.00
Machine turnings, Birmingham	6.50 to 7.50
Machine turnings, Chicago	7.00 to 7.50
Machine shop turnings, St. Louis	5.00 to 5.50
Pipes and flues, Cleveland	10.75 to 11.25
Pipes and flues, Chicago	13.50 to 14.00
Pipes and flues, St. Louis	11.50 to 12.00
R. R. mach. cast, No. 1, Buffalo	21.00 to 22.00
R. R. wgt. No. 1, Buffalo	27.00 to 28.00
R. R. wrgt. No. 1, east. Pa.	21.00 to 22.00
Railroad wrgt., No. 1, Cincinnati	18.00 to 18.50
Railroad wrgt., No. 1, Cleveland	16.00 to 17.00
R. R. wrought, No. 1, Pittsburgh	17.00 to 18.00
Railroad wrgt., No. 2, Chicago	16.00 to 16.50
Railroad wrought, No. 1, Chicago	17.50 to 18.00
R. R. wrought, No. 1, Birmingham	12.00 to 13.00
No. 1 yard wrought, eastern Pa.	18.00 to 19.00
No. 1 busheling wrgt., east. Pa.	16.00 to 17.00
Sheet bar crops, Pittsburgh	18.00 to 19.00
Railroad wrgt., No. 1, St. Louis	15.00 to 15.50
Railroad wgt., No. 2, St. Louis	13.50 to 14.00
Wrought pipe, Buffalo	13.00 to 14.00
Wrought pipe, east. Pa.	16.00 to 17.00
Wrought pipe, ungraded, east. Pa.	11.00 to 12.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$12.25 to 12.75
Axle turnings, Buffalo	13.00 to 14.00
Heavy axle turnings, east. Pa.	12.00 to 13.00
Heavy axle turnings, Pittsburgh	12.50 to 13.50
Shafting, New York (Dealers')	19.00 to 20.00
Shafting, east. Pa.	23.00 to 25.00
Shafting, St. Louis	17.00 to 17.50
Steel car axles, Birmingham	18.00 to 20.00
Steel car axles, Pittsburgh	25.00 to 26.00
Steel car axles, N. Y. (Dealers')	22.00 to 23.00
Steel car axles, Buffalo	23.00 to 24.00
Steel car axles, Cleveland	25.00 to 26.00
Steel car axles, East. Pa.	nominal
Steel car axles, Chicago	22.50 to 23.00
Steel car axles, St. Louis	21.00 to 21.50

IRON FOUNDRY USE

Car wheels (iron), Pittsburgh	21.00 to 22.00
Car wheels (steel), Pittsburgh	17.00 to 18.00
Car wheels, East. Pa.	22.00 to 23.00
Car wheels, Buffalo	21.00 to 22.00
Car wheels, Chicago	20.00 to 21.00
Car wheels, St. Louis	20.50 to 21.00
Car wheels, Birmingham	12.00 to 13.00
Car wheels, Cleveland	16.00 to 16.50
Tram car wheels, Birmingham	17.00 to 18.00
Cast, No. 1, Birmingham	19.00 to 19.50
Cast, No. 1, cupola, east. Pa.	22.00 to 23.00
Cast, No. 1, Cleveland	20.50 to 21.50
Cast, No. 1, Cincinnati	17.00 to 17.50
Cast, 1, machy., N. Y. (Dealers')	20.00 to 21.00
Cast, 1, heavy, N. Y. (Dealers')	19.00 to 20.00
Cast, No. 1, Chicago	22.25 to 23.25
Cast, No. 1, Pittsburgh	21.00 to 22.00
Cast, No. 1, St. Louis R. R.	20.50 to 21.50
Malleable, Cincinnati	15.00 to 15.50
Malleable, Cleveland	15.00 to 15.50
Malleable, Buffalo	19.00 to 20.00
Malleable, Pittsburgh	18.00 to 18.00
Malleable, East. Pa.	nominal
Malleable, cupola, East. Pa.	nominal
Malleable, railroad, Chicago	17.50 to 18.00
Malleable, agricultural, Chicago	16.50 to 17.00
Malleable, railroad, St. Louis	12.75 to 13.50
Malleable, agricultural, St. Louis	11.00 to 11.50

MISCELLANEOUS USES

Boiler punchings, Chicago	19.00 to 20.00
Reroll. rails, 5 ft. and over, Pitts.	17.00 to 18.00
Reroll. rails, 5 ft. and over, Chi.	16.25 to 16.75
Reroll. rails, 5 ft. and over, E. Pa.	16.50 to 17.50
Reroll. rails, 5 ft. and over, St. L.	14.00 to 14.50
Reroll. rails, 5 ft. or over, Cleve.	14.50 to 15.00
Rerolling rails, long, Birmingham	37.50 to 38.50
Locomotive tires, Chicago	17.00 to 18.00
Locomotive tires, St. Louis	14.00 to 14.50